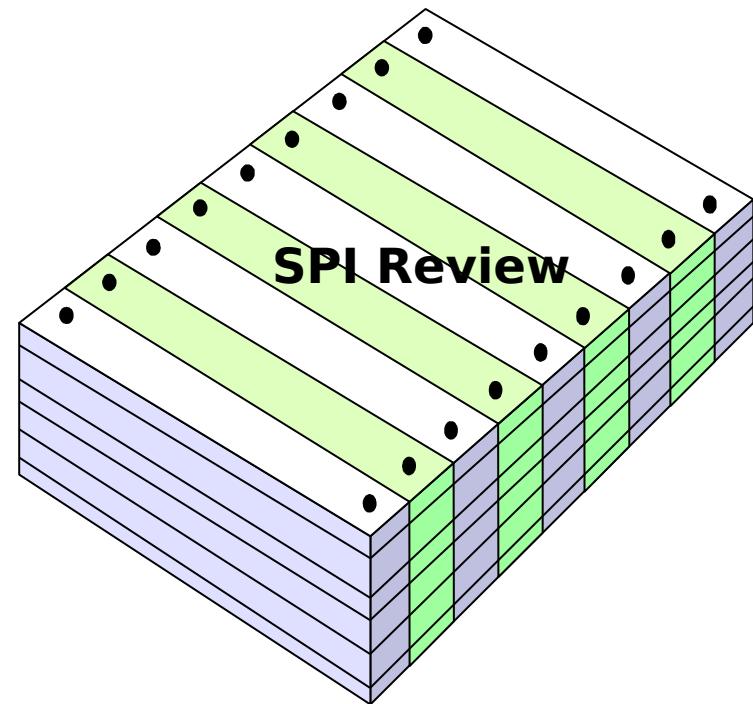
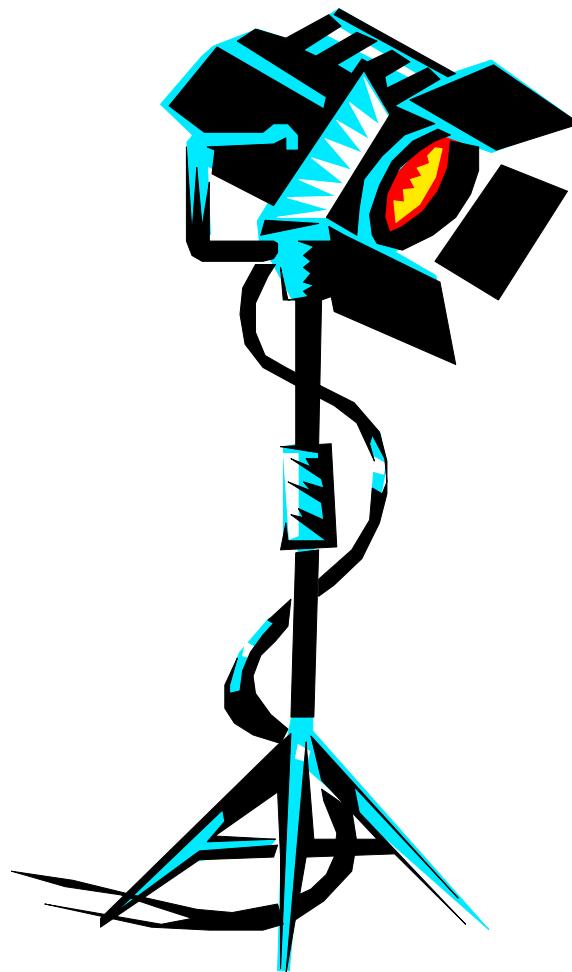


Course Overview:

- High level review of SPI, CMM and SMS
- Introduce Software Quality Assurance (SQA)
- Identify SQA Tasks, Subtasks, and Procedures, as outlined in the SMS

SECTION 1



SPI, CMM, SMS Review

Objectives:

- Define SPI
- Define CMM
- Identify CMM levels and Level 2 KPAs
- Define SMS
- Identify levels of the SMS



Software Process Improvement (SPI)

SPI is:

- Effort to Improve Software Process
- System of:
 - **Tasks**
 - **Methods**
 - **Tools**
 - **Practices**
 - **Standards**
- Applicable Throughout Software Life

~~Cycle~~



Capability Maturity Model (CMM)

A FRAMEWORK FOR EFFECTIVE SOFTWARE PROCESSES

- Identifies:
 - Maturity Levels
 - Key Process Areas
 - Common Features

KEY PROCESS AREAS (KPAs)

As Defined by

SOFTWARE ENGINEERING INSTITUTE

"SOFTWARE ENGINEERING AND MANAGEMENT

(SEI)
PRACTICES"

LEVEL 1 -

INITIAL

LEVEL 2 - REPEATABLE



LEVEL 4 -
MANAGED



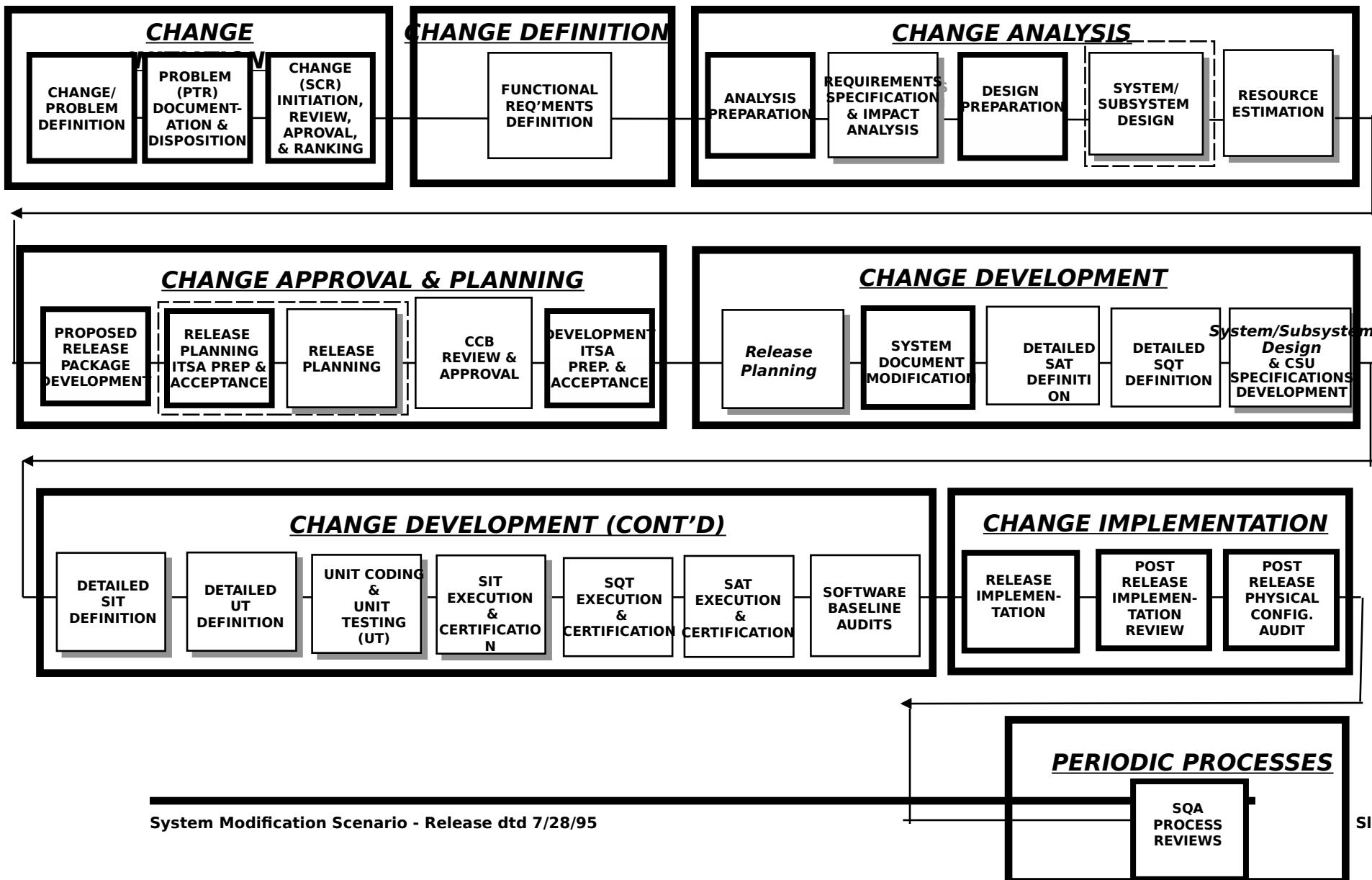
LEVEL 5 -
OPTIMIZING



System Modification Scenario (SMS)

The SMS is:

- One part of the Software Process Architecture**
- Focuses on routine system modification**
- Provides:**
 - process definition,**
 - description, and**
 - documentation**

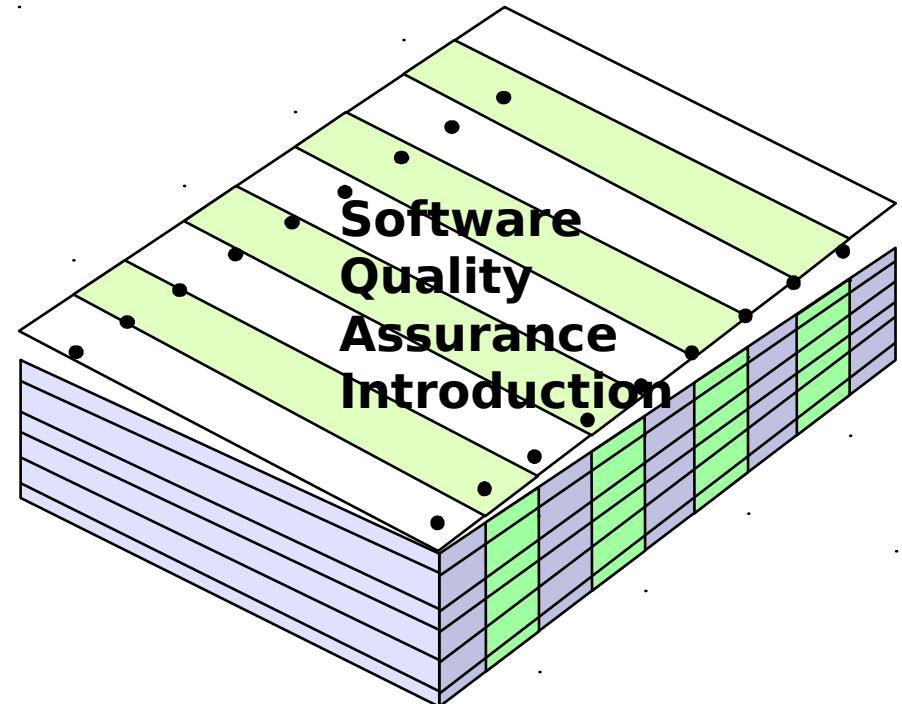
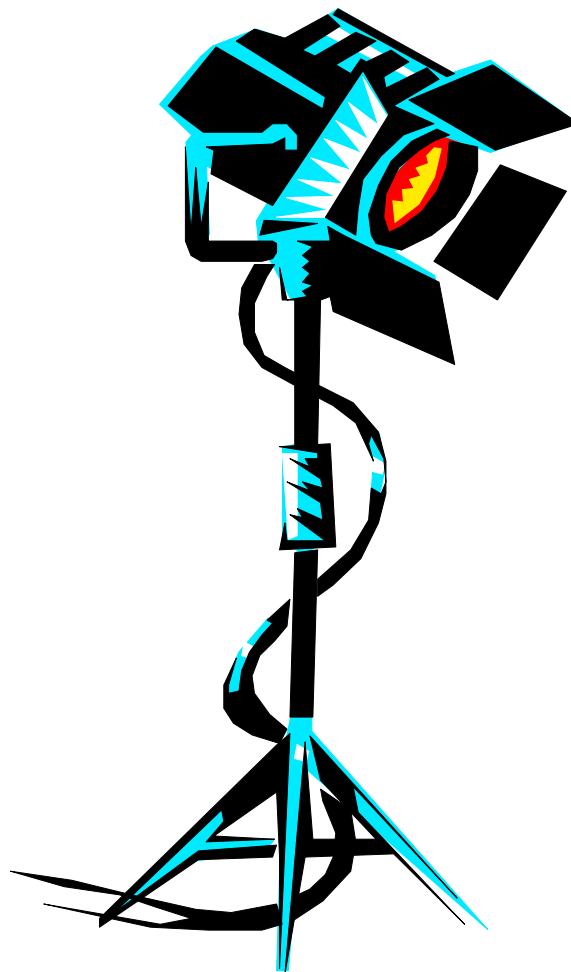
SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES

Performance Check



**Open the Performance Check booklet
to SPI, CMM, SMS Review page and
answer the questions.**

SECTION 2



Software Quality Assurance (SQA) Introduction

OBJECTIVES:

- **Define Software Quality Assurance**
- **Identify SQA benefits to management**
- **Identify controls in FSO's SQA Policy**
- **Identify SQA goals**
- **Identify SQA roles and responsibilities**
- **Locate information to support SQA activities**

Software Quality Assurance (SQA) Introduction

WHAT IS SOFTWARE QUALITY?

“Software Quality is the degree to which a software product conforms to a set of specified requirements.”

“The degree of excellence required and maintained at an acceptable price.”

SQA TACTICAL WORKING GROUP BRIEF, 9-26-94

Software Quality Assurance (SQA) Introduction

WHAT IS SOFTWARE QUALITY ASSURANCE?

- **Framework for**
 - **Independent assessment & insight into**
 - » **S/W development processes & products**
- **Ensures conformance to**
 - **Functional & performance requirements**
 - **Development standards**
 - **S/W Quality Factors**

SEI CMM

Level	Focus	Key Process Areas	
Result 5 - Optimizing	Continuous	Process Change Management	
Quality	Improvement	Technology Change Management Defect Prevention	
4 - Managed	Product & Process Quality	SW Quality Management Quantitative Process	
Management 3 - Defined	Engineering Process	Peer Reviews, Intergroup Coordination, Software Product Engineering, Integrated SW Management, Training Program, Organization Process Definition, Organization Process Focus	
2 - Repeatable	Project Management	Configuration Management Quality Assurance	
		Subcontract Management Project Tracking & Oversight Project Planning	
1 - Initial	Ad Hoc	Requirements Management	

Software Quality Assurance (SQA) Introduction

CMM's SQA COMMON FEATURES:

- Goals
- Commitment to Perform
- Ability to Perform
- Activities
- Measurement and Analysis
- Verifying Implementation

Software Quality Assurance (SQA) Introduction

GOALS:

- Plan Software Quality Assurance Activities
- Adhere to standards, procedures, and requirements
- Inform affected personnel of SQA activities and results
- Address unsolved non-compliance issues

Software Quality Assurance (SQA) Introduction

Commitment to Perform



**Project follows a written organizational
policy for implementing SQA**

Software Quality Assurance (SQA)

Introduction

ABILITY TO PERFORM:

- **Responsibilities to coordinate and implement SQA**
- **Adequate funding and resources are provided**
- **Train to perform SQA activities**
- **Receive orientation on role, responsibilities, authority, and value of SQA group**



Software Quality Assurance (SQA) Introduction

Measurement and Analysis



**Determine the cost and schedule
status of SQA activities.**

Software Quality Assurance (SQA) Introduction

Verifying Implementation



- **SQA reviews activities with Senior Management**
- **SQA reviews activities with Project Manager**
- ~~Experts review SQA activities and work products~~

Software Quality Assurance (SQA)

Introduction

SQA ROLES & RESPONSIBILITIES

Customer Correct/Complete Requirement Def.

FSO HQ Proper Funding & Interim Assess.

FSA Director Support

Technical
Project Officer Create SQA Environment

FSO Corp. SQA Verify Standard System Scenarios

Staff SQA Process Compliance

Project SQA Product Compliance

Software
Developers Responsible for QA

SQA TACTICAL WORKING GROUP BRIEF, 9-26-94

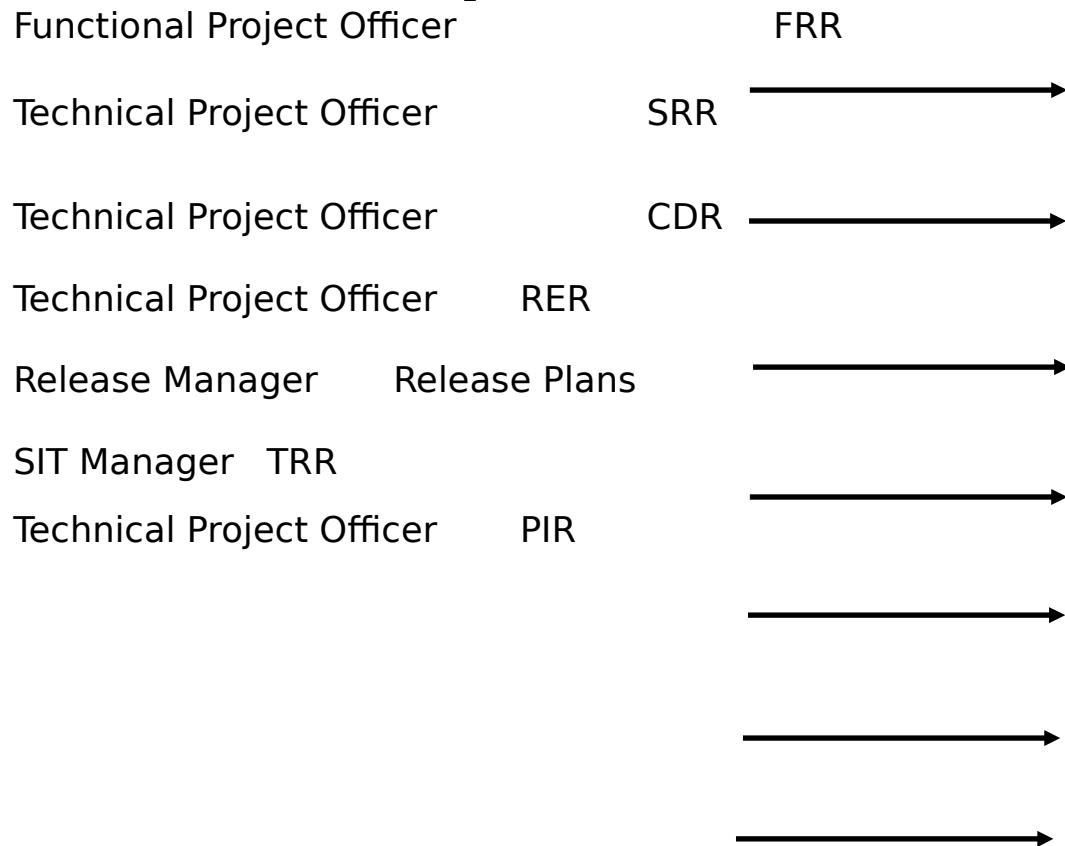
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SQA TACTICAL WORKING GROUP BRIEF, 9-26-94

Software Quality Assurance (SQA) Introduction

SQA ROLES & RESPONSIBILITIES



SQA TACTICAL WORKING GROUP BRIEF, 9-26-94

Software Quality Assurance (SQA) Introduction

POLICY

PURPOSE:

- Establish DFAS FSO SQA Program
- Delegate FSO authority through FSAs and DSEs
- Ensure software products
 - Are high quality
 - Meet customer expectations
 - Satisfy requirements

Software Quality Assurance (SQA) Introduction

POLICY

SCOPE:

- Applicable to all Defense Finance and Accounting Financial Systems Activities
- Applicable to contractors supporting DFAS AIS development
- To be implemented throughout the life cycle of all newly developed, migratory and legacy Automated Information Systems (AISs)

Software Quality Assurance (SQA) Introduction **POLICY**

GOALS /OBJECTIVES:

- Plan and measure SQA activities
- Employ software development methods techniques to minimize maintenance cost
- Inform management and other affected groups of SQA activities and results

Software Quality Assurance (SQA) Int'l. Policy

POLICY

GOALS /OBJECTIVES CON'T:

- Adherence of software products and activities to applicable standards, procedures and requirements is verified objectively
- Unresolved noncompliance issues are addressed by Senior Management
- To provide feedback and assessment channels

~~Software Quality Assurance (SQA)~~

Introduction

QUALITY FACTORS

The following steps serve as a starting point for tracking and measuring quality:

- Select system characteristics
- Determine set of quality factors
- Extract criteria for each factor
- Incorporate into review checklists
- Translate results into guidelines

~~Software Quality Assurance (SQA)~~

Introduction

System Characteristics and Related Quality Factors

System Characteristics Important Quality Factors

Human lives are affected

Reliability

Correctness

Testability

Long life cycle

Maintainability

Flexibility

Portability

Reusability

Real Time Application

Efficiency

Reliability

Correctness

~~Software Quality Assurance (SQA)~~

Introduction

System Characteristics and Related Quality Factors

System Characteristics Factors

Classified Information Processed

Interfacing with Related

On-board Computer
Applications

DoD-Wide Applications

Important Quality

Integrity

Interoperability
Systems

Efficiency
Reliability
Correctness

Portability
Reliability
Interoperability
Integrity
Flexibility
Reusability

Software Quality Assurance (SQA)

Introduction

System Characteristics and Related Quality Factors

System Characteristics Factors

Client Server Application

Important Quality

Efficiency
Reliability
Portability

Interoperability

PC Based Applications

Integrity
Efficiency
Portability
Interoperability
Reusability

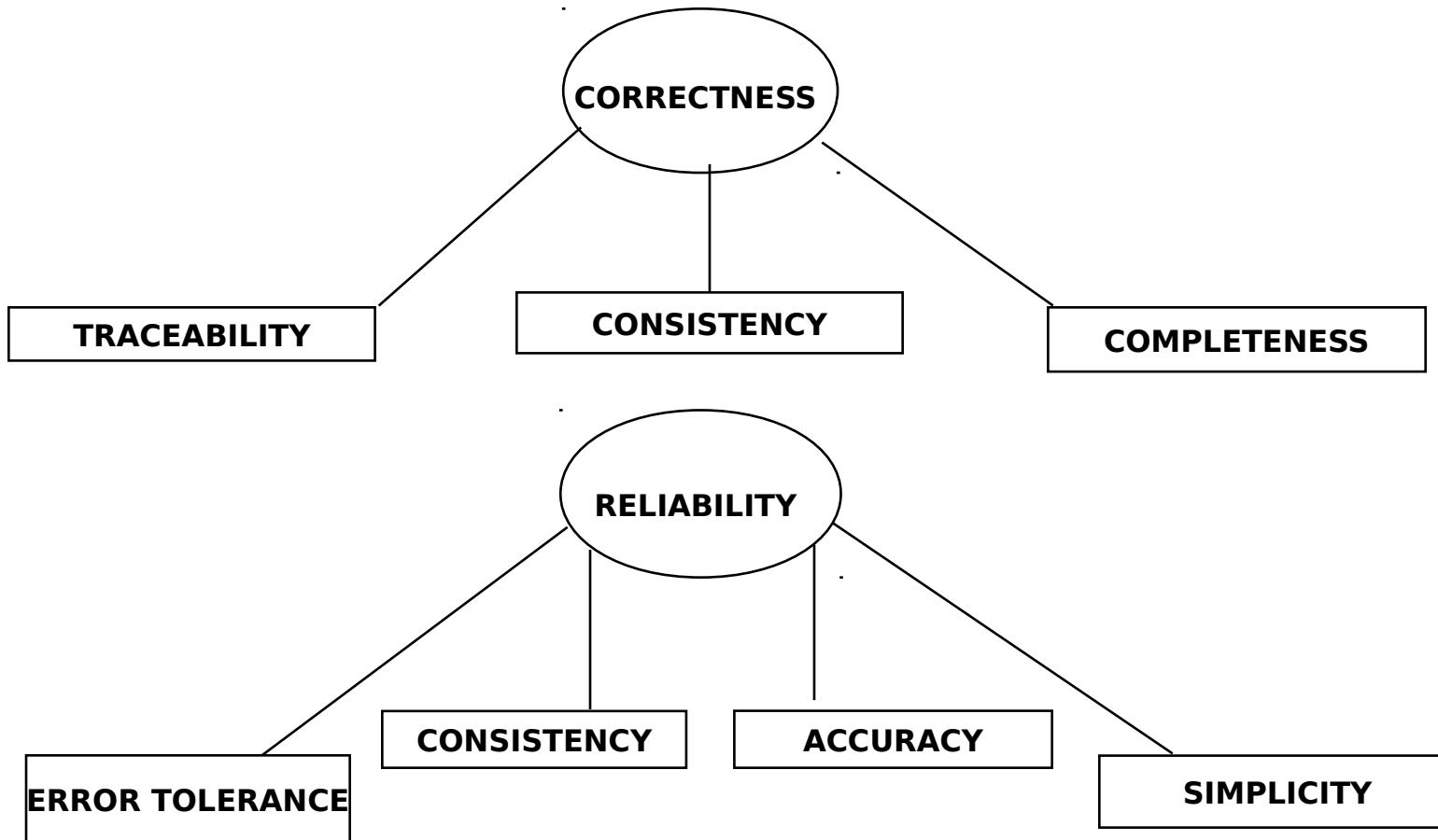
I-Case Repository Applications

Integrity
Maintainability
Flexibility
Reusability

Software Quality Assurance (SQA)

Introduction

Example of Relationship of Criteria to Software Quality Factors



Software Quality Assurance (SQA)

Introduction

Example of Incorporating Criteria into Review Checklist

Review Checklist

Quality Factor: MAINTAINABILITY

Questions

Yes

No _____

(1) Does this unit have high internal cohesion and low external coupling (e.g., changes to this unit do not have unforeseen effects within the unit and have minimal effects on other units)?

(2) Has the complexity of this design been minimized? _____

(3) Does the header meet project standards? (e.g., purpose, author, environment, files, development history, explanatory notes)

(4) Does the unit exhibit clarity, readability, and modifiability?

Software Quality Assurance (SQA)

Introduction

Analyze/translate checklist results

- (1) Count each “yes” answer and each question as one.
- (2) Summarize the “yes” answers for each quality factor
- (3) Divide the total of column 1 by the total of column 2
- (4) Quotient = % or quality achieved. Log that value in the Quality Review Summary Report.

Computational Example:

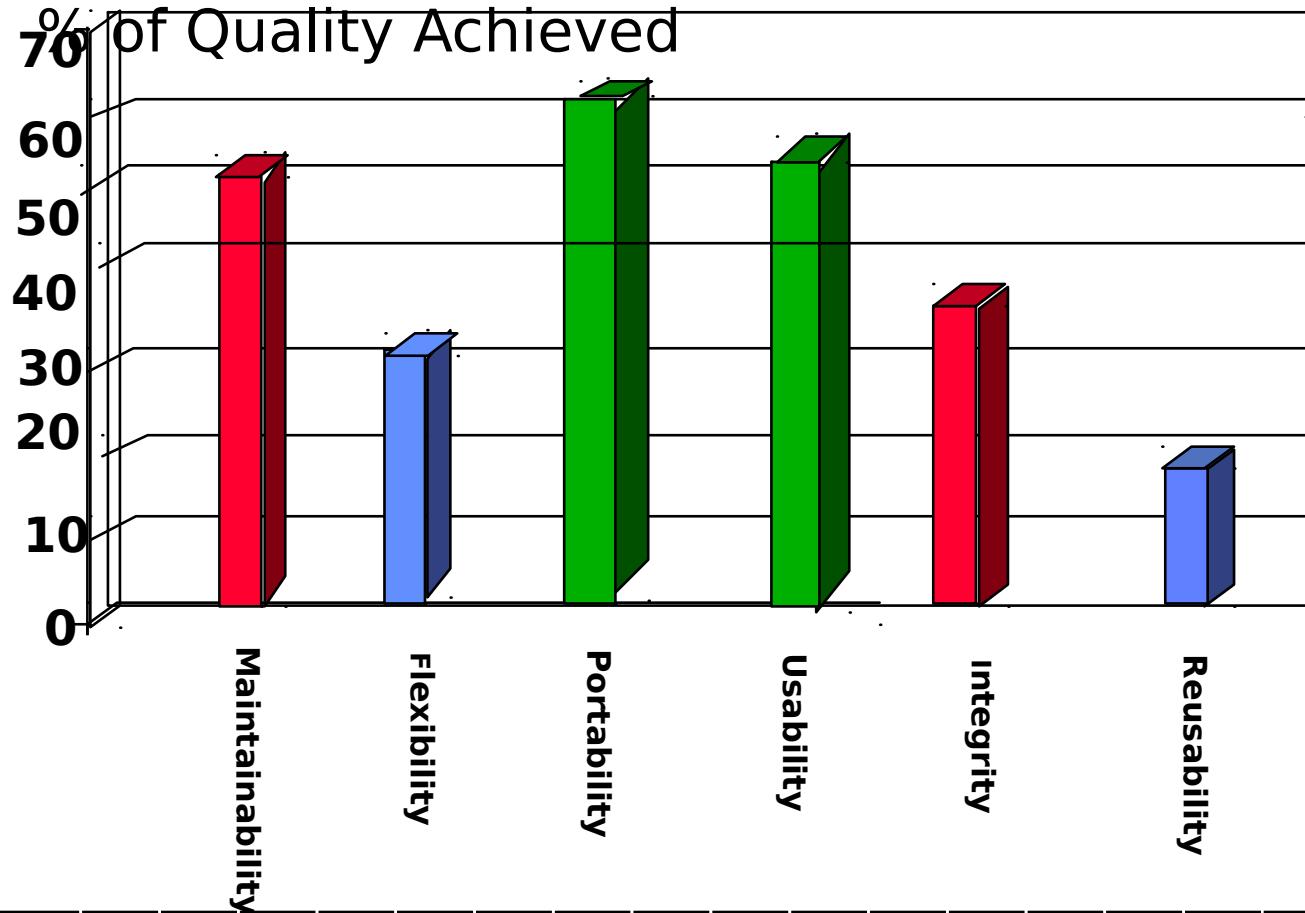
<u>Quality Factor</u>	<u>Criteria</u>	<u># Yes</u>	<u>Total #</u>
<u>Quotient</u>		<u>Questions</u>	
Maintainability	Modularity	0	2
	Self-Descriptiveness	2	2
	Consistency	2	6
	Simplicity	2	3
	Conciseness	4	7

Software Quality Assurance (SQA)

Introduction

Quality Profile Graph: Milestone =

CDR



Software Quality Assurance (SQA) Introduction

DEVELOPING THE SQA PLAN

- The SQA Plan delineates all of the SQA activities that are required and are to be conducted over the life of the project.
- The size of the SQA plan varies depending on the size and scope of the effort it is to support.
- The Software Project Manager defines the requirements for and approves the project/system SOA plan.

Software Quality Assurance (SQA) Introduction

DEVELOPING THE SQA PLAN (Con't)

- Other organizations will contribute to and support the scheduled activities of the SQA plan.
- The SQA plan is published as an attachment to the Software Development Plan.

Software Quality Assurance (SQA) Introduction

SQA PLAN TEMPLATE

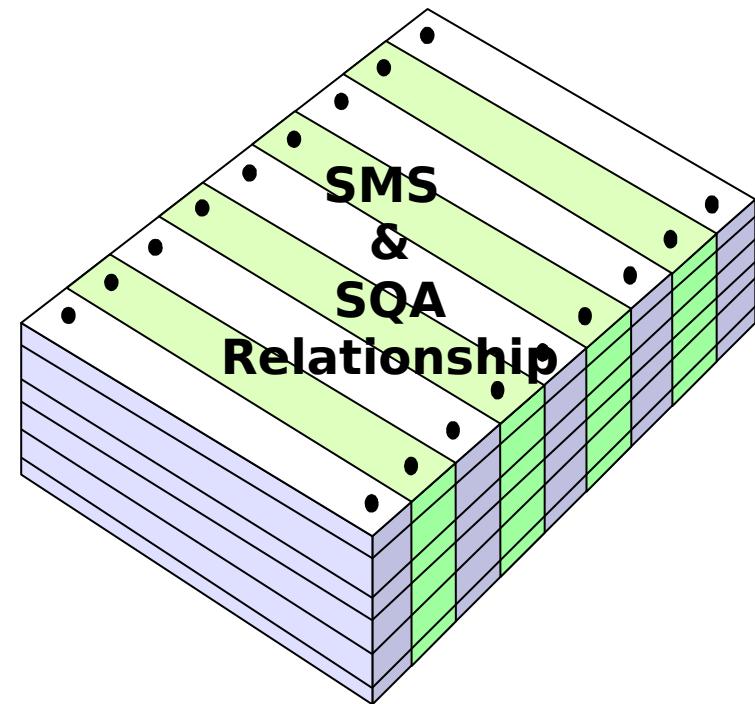
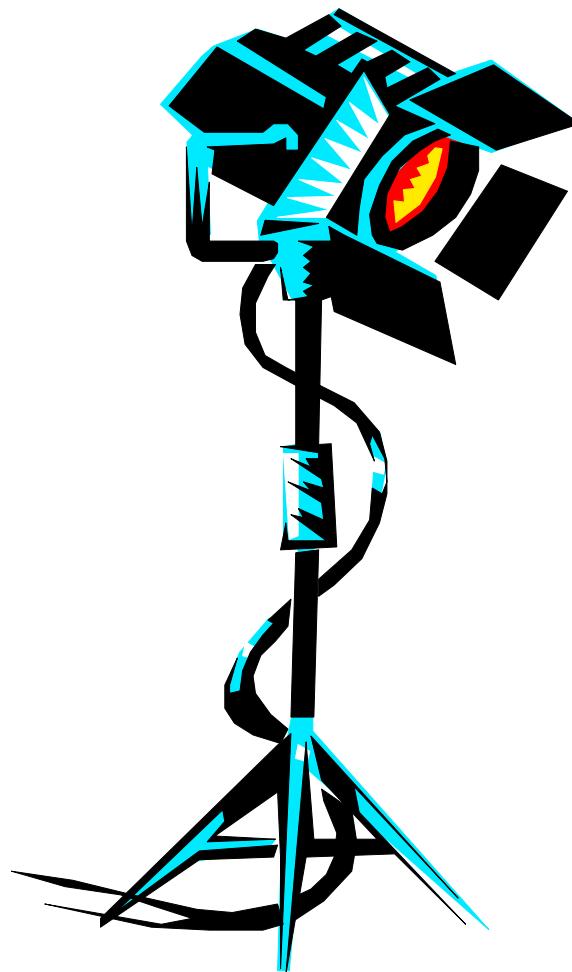
1. Purpose & Scope
2. References Documented
3. Project Profile Description
4. Management Strategies
5. Documentation Requirements
6. Standards Identification
7. Reviews and Audits Identification
8. Software Configuration Management Plan Description
9. Testing Description
10. Defect Tracking and Problem Reporting
11. Tools and Techniques
12. Training Requirements Identification
13. Risk Management Employed

Performance Check



**Open the Performance Check booklet
to Software Quality Assurance
Introduction page and answer the
questions.**

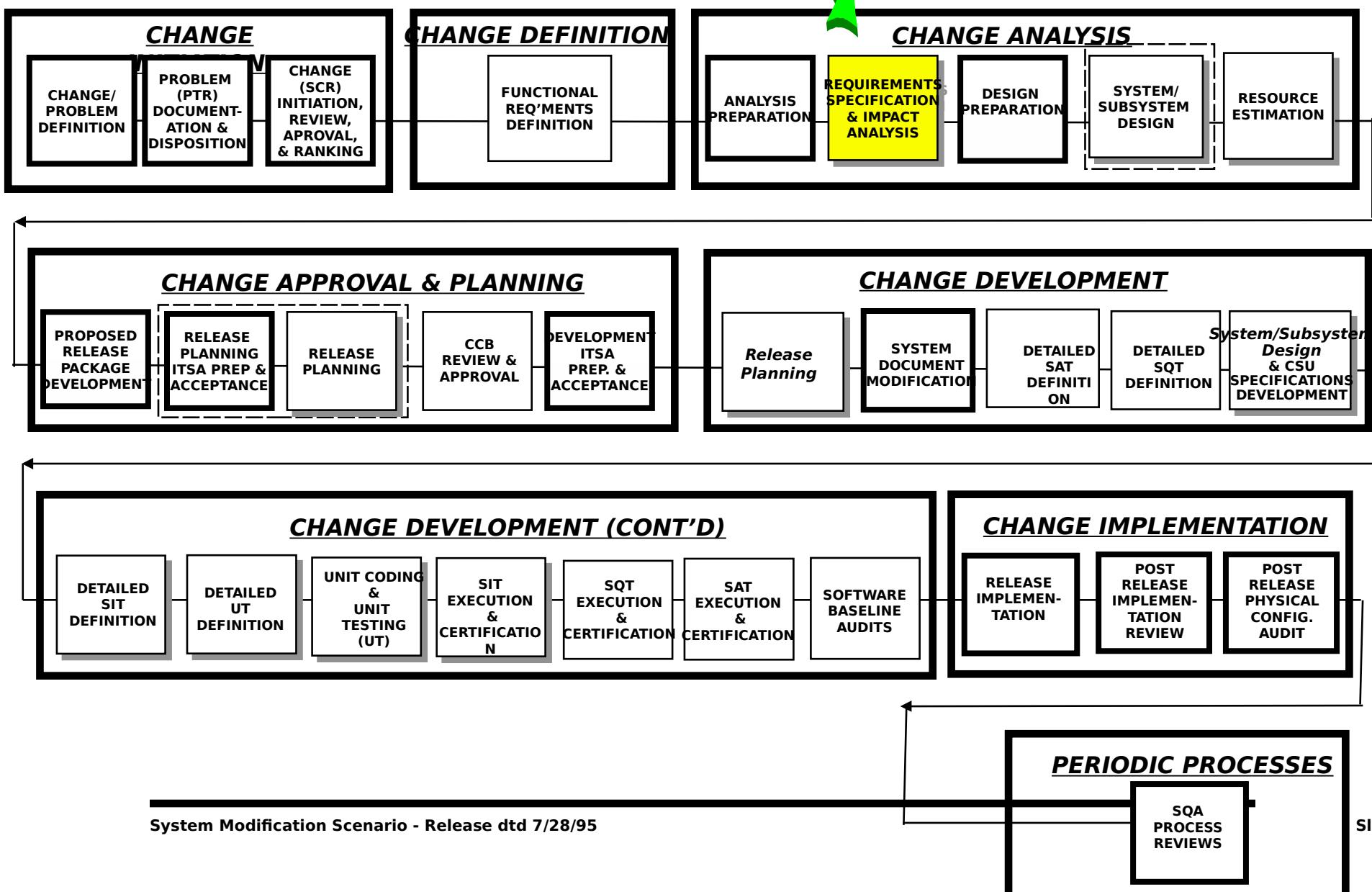
SECTION 3

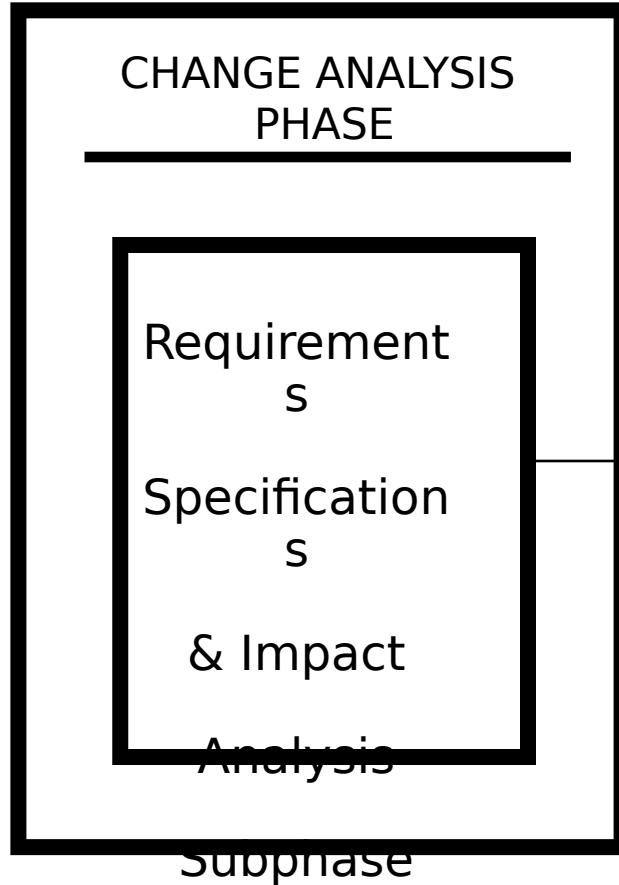


SMS & SQA RELATIONSHIP

OBJECTIVE:

-
- Use the SMS to perform**
 - **SQA tasks**
 - **subtasks**
 - **procedures.**

SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES



1 TASK

System Requirements
Review

Standard (s):

FSO KPA WG Guidelines
DoD 2168

Input (s):

Analysts Review Report →

FSA Impacted SCR →

Installation/Implementation Plan (IIP) →

Ranked SCR List →

SQA Plan →

SRR Open Action Item List →

Previous SRR Summary Report →

Output (s):

Completed SRR Checklist →

SRR Open Action Item List →

SRR Package →

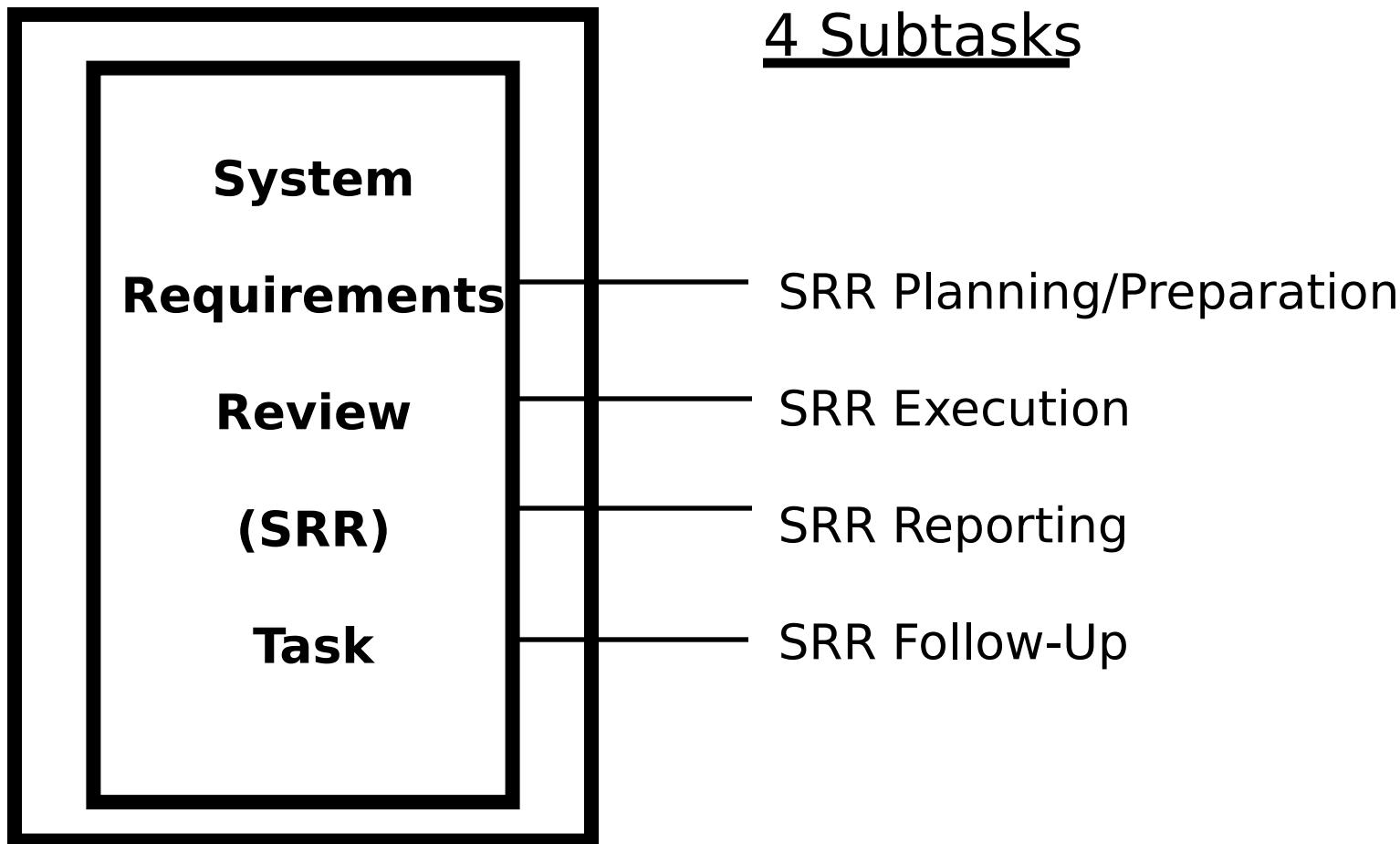
SRR Summary Report →

System Requirements Review (SRR) Task (1 of 1)

Purpose: Ensure that detailed functional requirements reflect customer's definition

Skill(s):

Functional Expertise
Software Engineering
SQA
Testing
User Expertise



System Requirements Review (SRR) Task

SRR Preparation/Planning

Subtask 1 of 4

- Identify SCRs for Review, SRR participants, meeting recorder, and each SCR presenter
- Schedule SRR Facilities
- Develop SRR Agenda
- Notify Participants of SRR
- Tailor and/or expand SRR Checklist
- Prepare SRR Package
- **Distribute SRR Package**

System Requirements Review (SRR) Task

SRR Execution **Subtask 2 of 4**

- Facilitate SRR
- Validate Functional Specifications
- Ensure Quality Compliance of Functional Specifications
- Document SRR
- Evaluate SRR

System Requirements Review (SRR) Task

SRR Reporting **Subtask 3 of 4**

- Prepare SRR Summary Report
- Distribute SRR Summary Report

System Requirements Review (SRR) Task

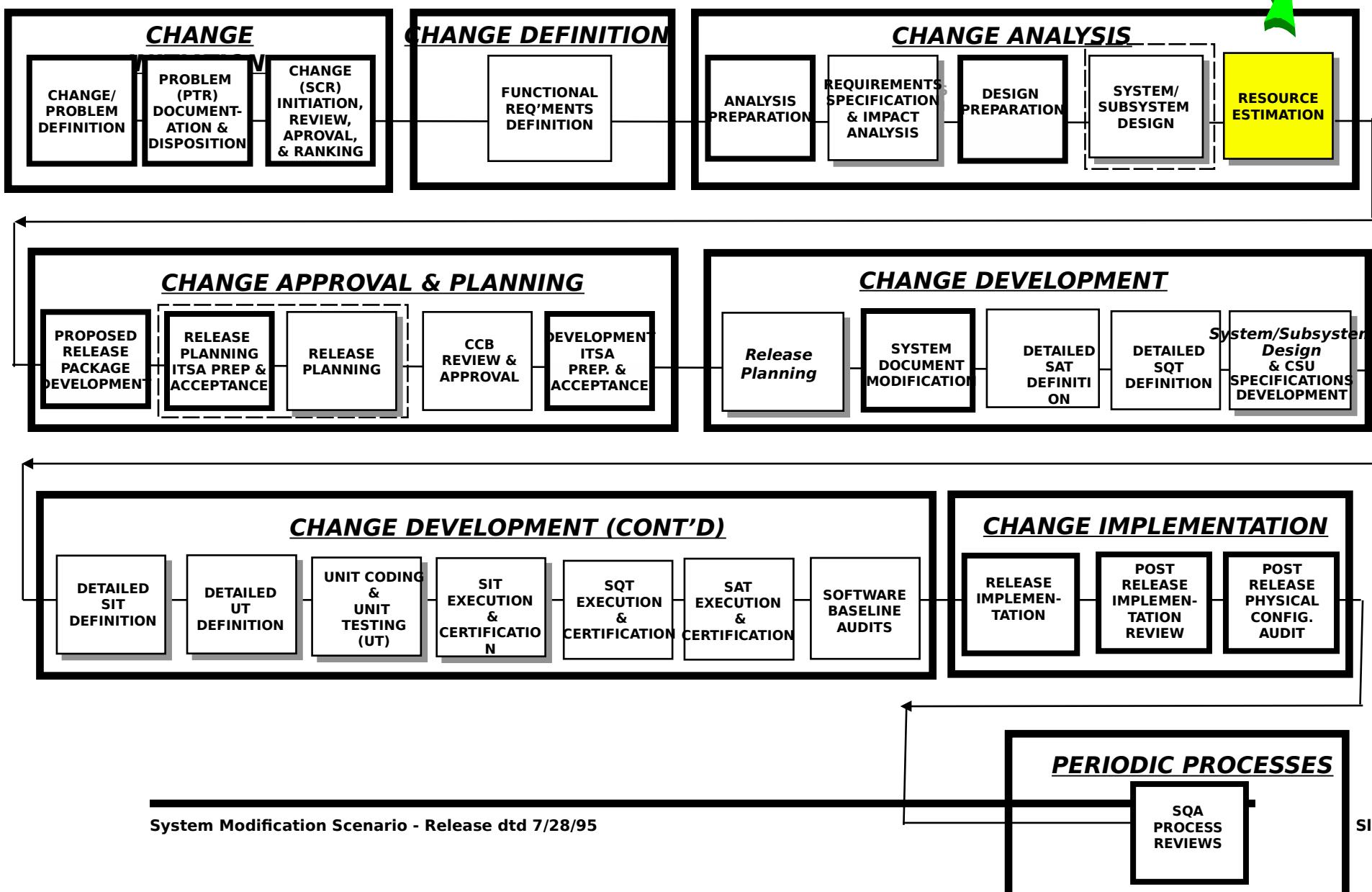
SRR Follow-Up **Subtask 4 of 4**

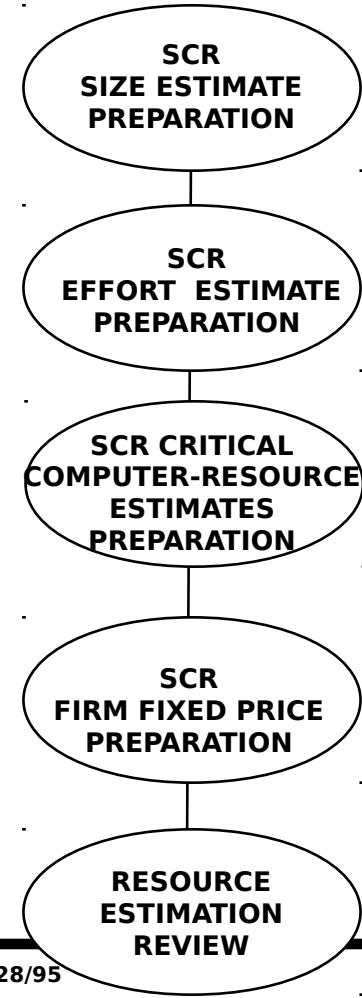
- Collect and Annotate SRR Metrics
- Generate Metric Report
- Collect SRR Action Items
- Track and Report SRR Action Items

Performance Check

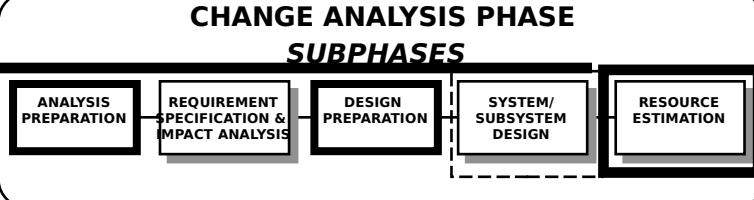


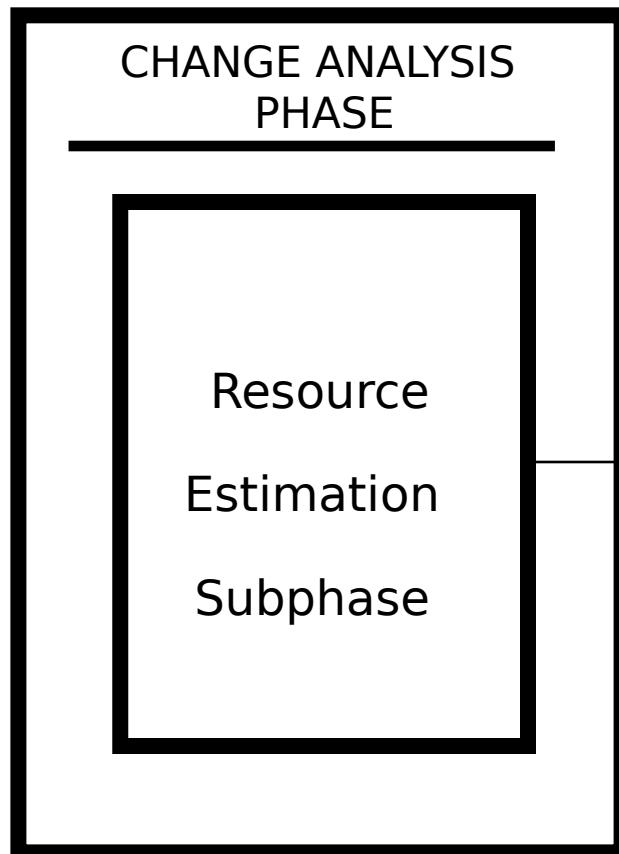
**Using the Performance Check directions,
the SMS and the SRR Package.
Student will participate in a simulated
SRR.**

SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES

RESOURCE ESTIMATION SUBPHASE**TASKS**

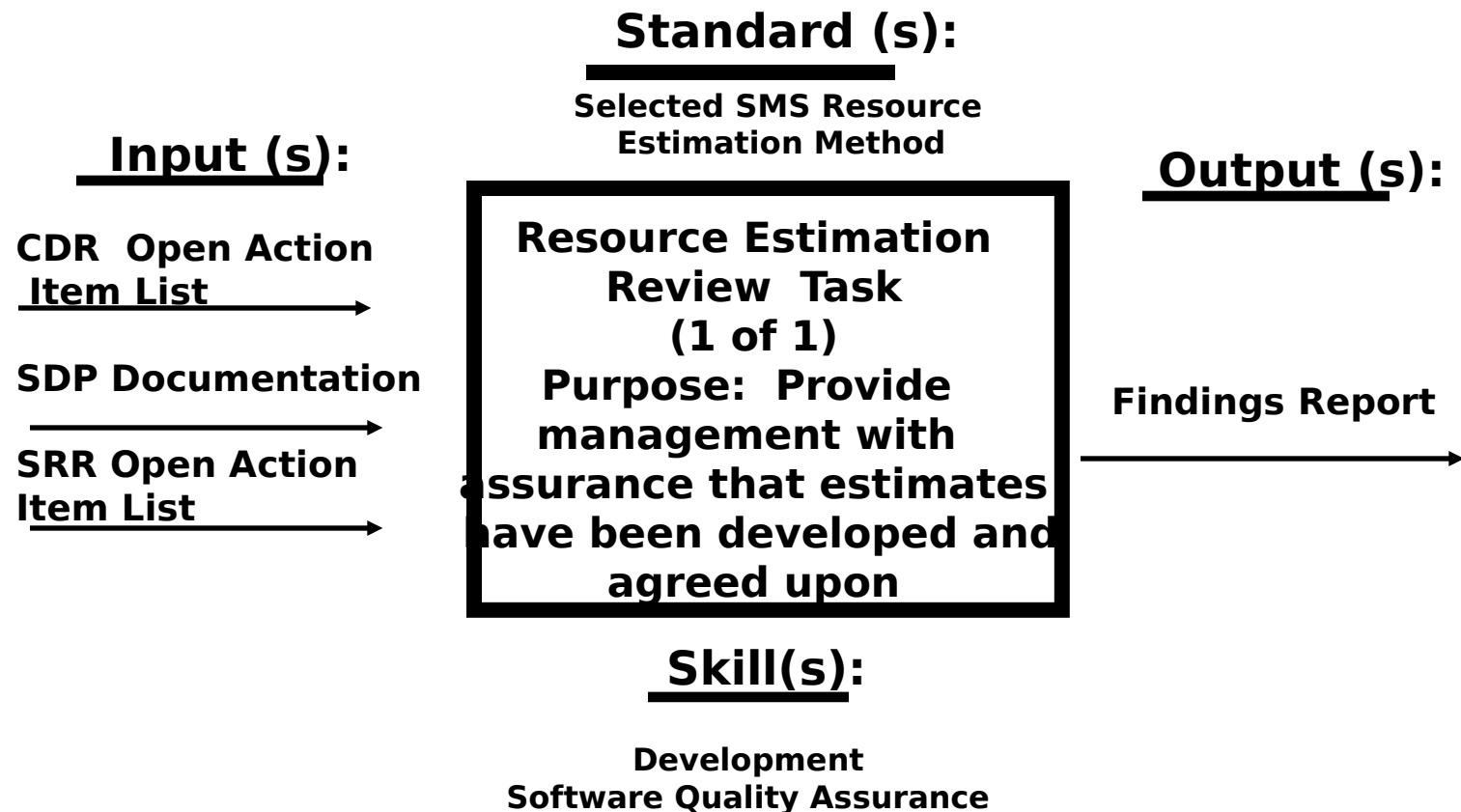
Note: These estimates refer to
SCRs or CIs

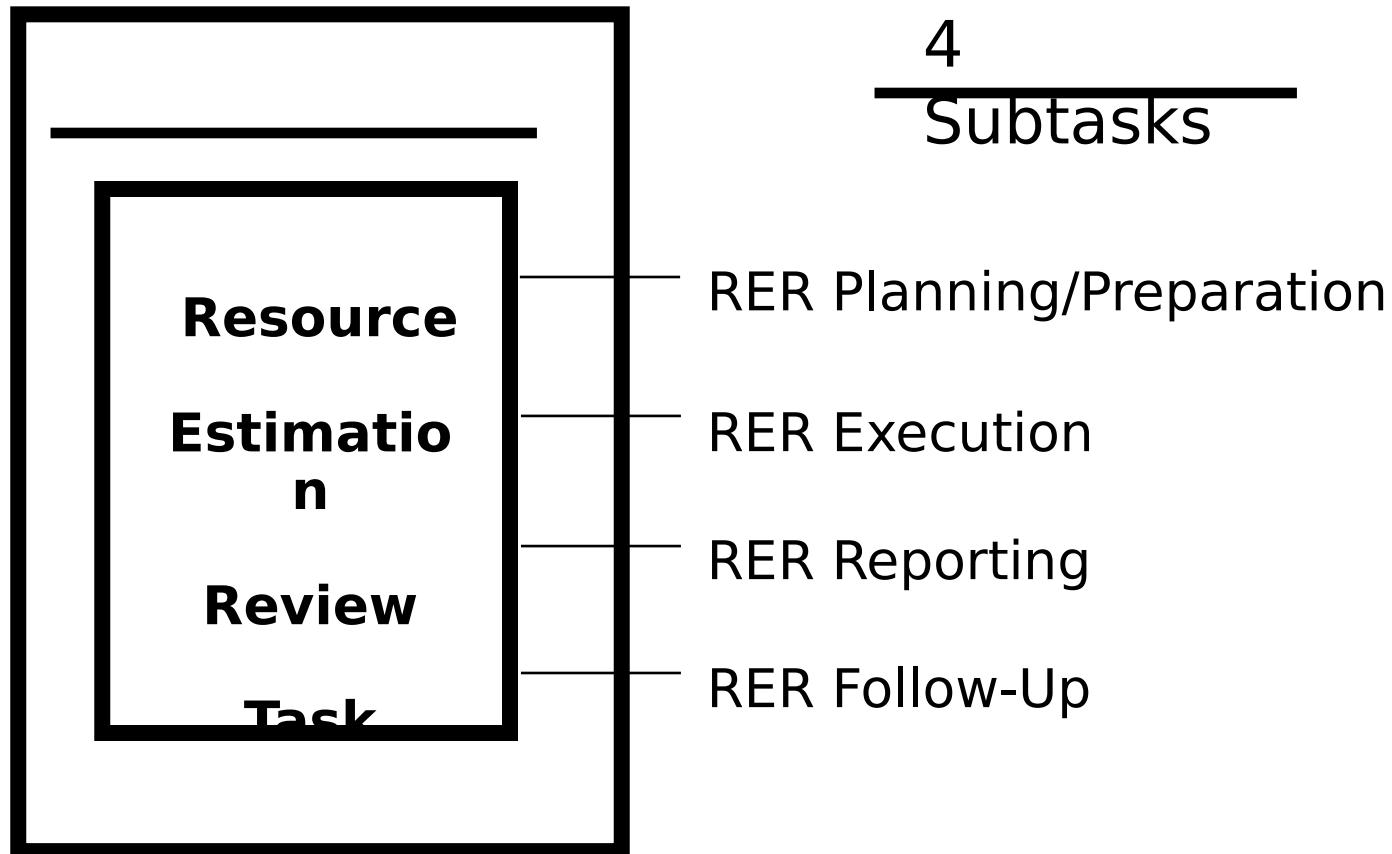
**CHANGE ANALYSIS PHASE
SUBPHASES**



1 TASK

Resource Estimation Review





Resource Estimation Review Task

RER Planning/Preparation **Subtask 1 of 4**

- Schedule RER Facilities
- Develop RER Agenda
- Notify Participants of RER
- Develop RER Package
- Distribute RER Package

Resource Estimation Review Task

RER Execution Subtask 2 of 4

- Facilitate RER
- Validate SCR and Resource Estimates
- Ensure Quality Compliance of Resource Estimates
- Document Resource Estimation Review
- Evaluate Resource Estimation Review

Resource Estimation Review Task

RER Reporting Subtask 3 of 4

- Prepare RER Summary Report
- Distribute RER Summary Report

Resource Estimation Review Task

RER Follow-Up Subtask 4 of 4

- Track and Report Action Items
- Correct Discrepancies

Performance Check



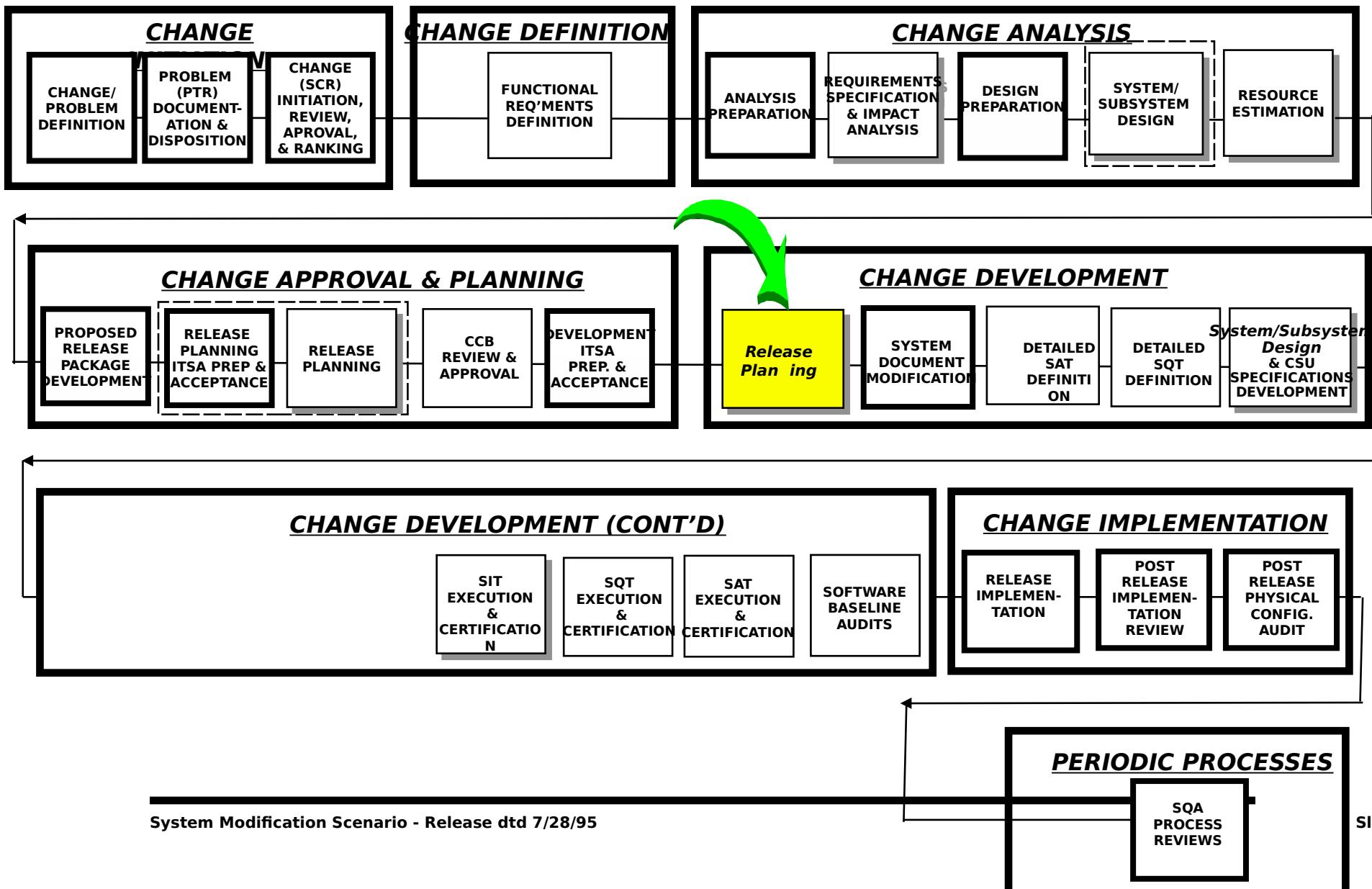
**Open the Performance Check
booklet to the Resource Estimation
Review Task and answer the
questions.**

SOFTWARE PROCESS ARCHITECTURE

02/02/97

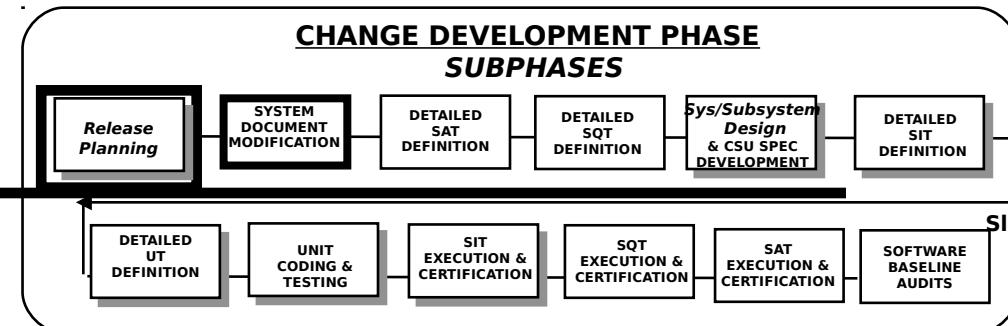
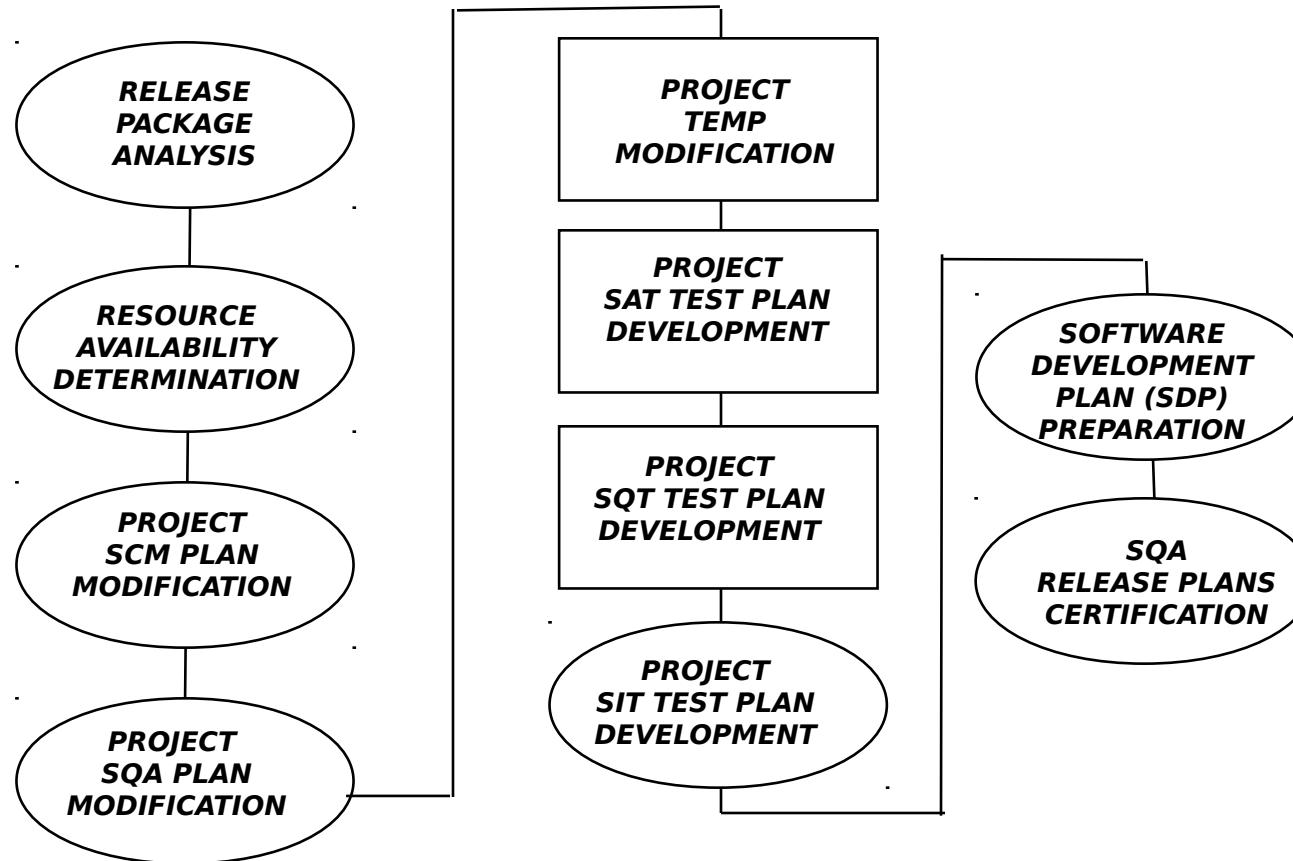
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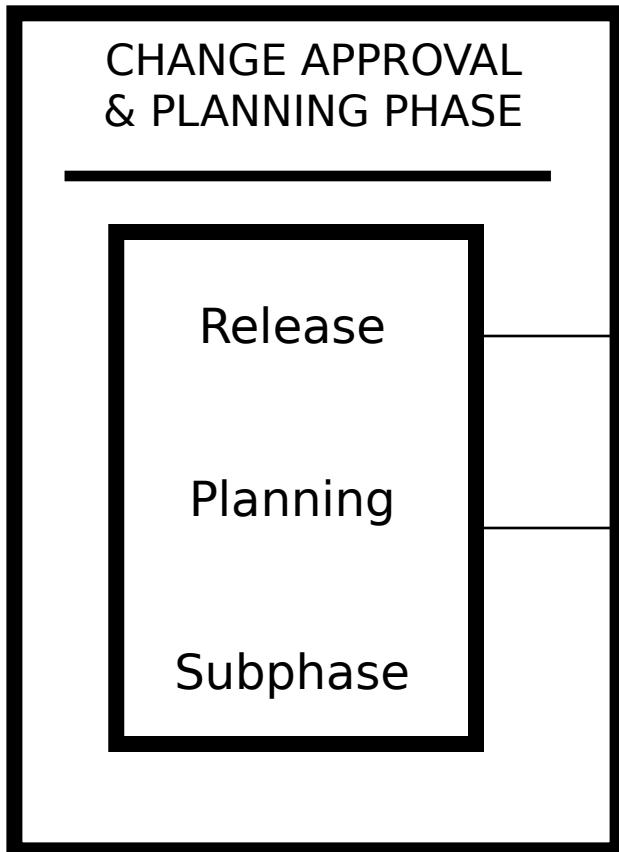
SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES



Release Planning SUBPHASE

TASKS





2 TASKS

- Project SQA Plan Modification
- SQA Release Plans Certification

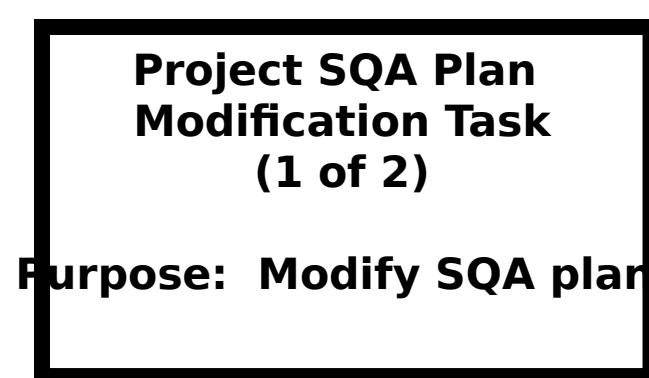
Standards:

DFAS FSO KPA WG SQA Guidelines
DoD 2168
DoD Directive 5000.1

Inputs:

**Proposed
Release
Package**

SQA Plan



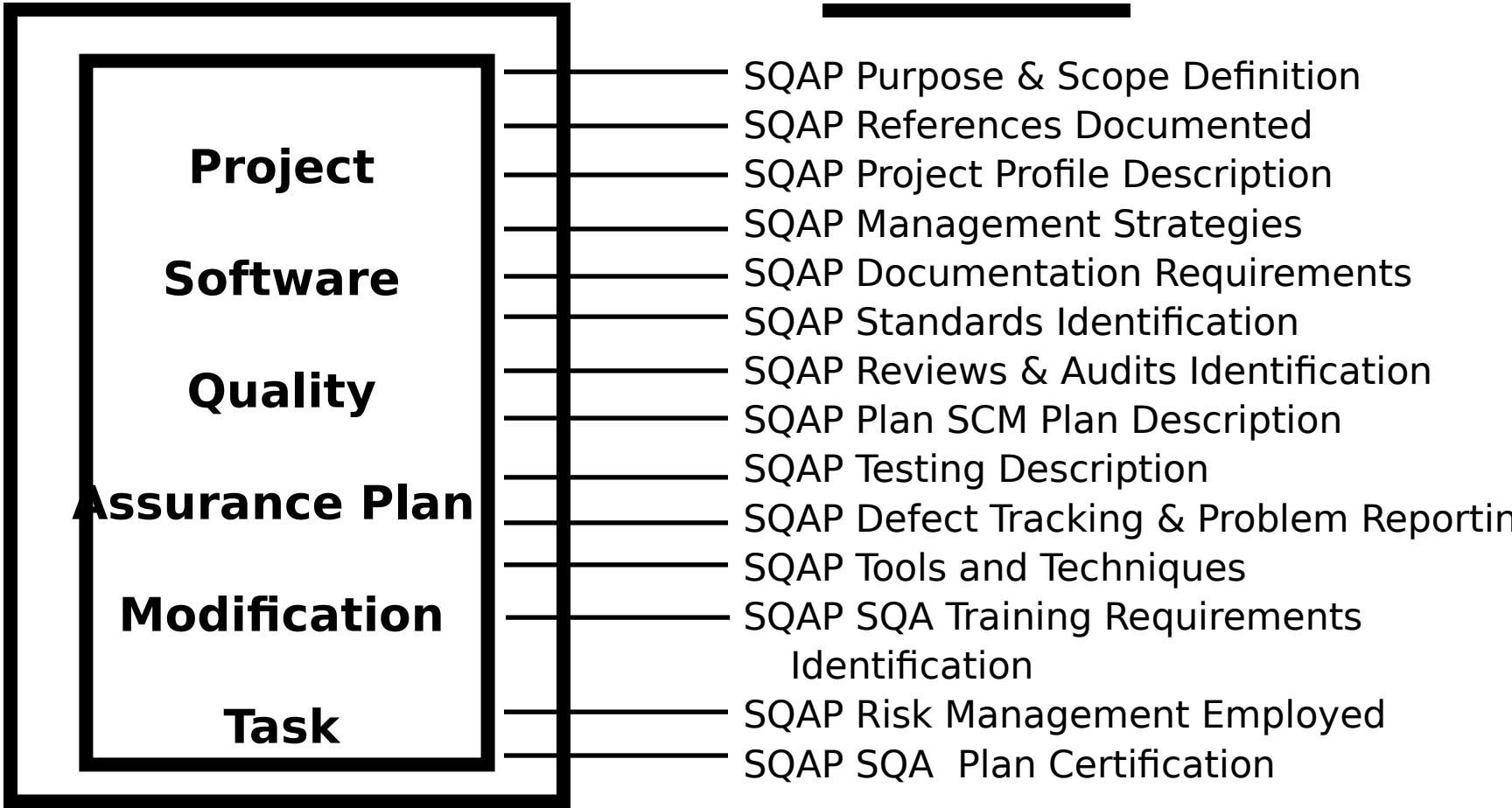
Output:

Modified SQA Plan

Skills:

**Functional Expertise
Project Management
Software Engineering
Software Quality Assurance**

14 Subtasks



Project SQA Plan Modification Task

SQAP Purpose & Scope Definition **Subtask 1 of 14**

Modify, as necessary:

- SQA Purpose Definition
- SQA Scope Definition

Project SQA Plan Modification Task

SQAP References Documented **Subtask 2 of 14**

Modify, as necessary:

-

Project SQA Plan Modification Task

SQAP Project Profile Description **Subtask 3 of 14**

- Document Changes to Complexity Matrix
- Identify Minimum Requirements
- Identify Changes to Quality Goals
- Selected Software Engineering Methodology

Project SQA Plan Modification Task

SQAP Management Strategies **Subtask 4 of 14**

- SQA Task/Responsibility Matrix Changes
- SQA Metrics Collection & Repository Changes
- SQA Report Requirement Changes

Project SQA Plan Modification Task

SQAP Documentation Requirements **Subtask 5 of 14**

- Identifies all documentation to support software development, verification and validation
- Outlines Responsibility Matrix

Project SQA Plan Modification Task

SQAP Standards Identification

Subtask 6 of 14

- Requirements Analysis Format & Content
 - Documentation Standards
 - Logic Structure Standards
 - Coding Standards
 - Commentary Standards
 - Testing Standards

Program Complexity Metrics Standards

Project SQA Plan Modification Task

SQAP Review & Audits Identification **Subtask 7 of 14**

- Describe the Reviews and Audits
- Note how the following are accomplished:
 - Inspections
 - Audits
 - Walkthroughs
 - ~~Reviews~~

Project SQA Plan Modification Task

SQAP SCM Plan Description

Subtask 8 of 14

- Identifies how compliance with the CM Plan is monitored

Project SQA Plan Modification Task

SQAP Testing Description **Subtask 9 of 14**

- Ensure Test Plan Modification
- Modify how compliance is monitored

Project SQA Plan Modification Task

SQAP Defect Tracking & Problem Reporting **Subtask 10 of 14**

Modify and/or Ensure

- Defect Tracking
- Problem Reporting

Project SQA Plan Modification Task

SQAP Tools & Techniques

Subtask 11 of 14

Modify:

- Tools used to perform SQA activities
 - Checklists
- Techniques used to perform SQA activities
 - function point analysis
 - interviews
 - simulation modeling
 - quantitative analysis

Project SQA Plan Modification Task

SQAP Training Requirements Identification

Subtask 12 of 14

Identify Training Requirements for:

- SQA Personnel
- Project Personnel

Project SQA Plan Modification Task

SQAP Risk Management Employed Subtask 13 of 14

- Identify, Assess, Monitor, & Control Areas of Risk
- Determine Likelihood of Risk
- Determine Severity of Adverse Effects Resulting from Risk

Project SQA Plan Modification Task

SQA Plan Certification **Subtask 14 of 14**

- Routing
- Evaluation
- Certification

Performance Check



**Open the Performance Checklist
booklet to Project Software
Quality Assurance Plan
Modification and perform the
exercise.**

Standard (s):

DFAS FSO KPA WG SQA Guidelines
DoD Directive 5000.1
DoD 2168

Input (s):

Release SCMP →
Release SQAP →
Release Test Plans →
Release SDP →

SQA Release Plans Certification Task (2 of 2)
Purpose: Review and and approve each modified project plan

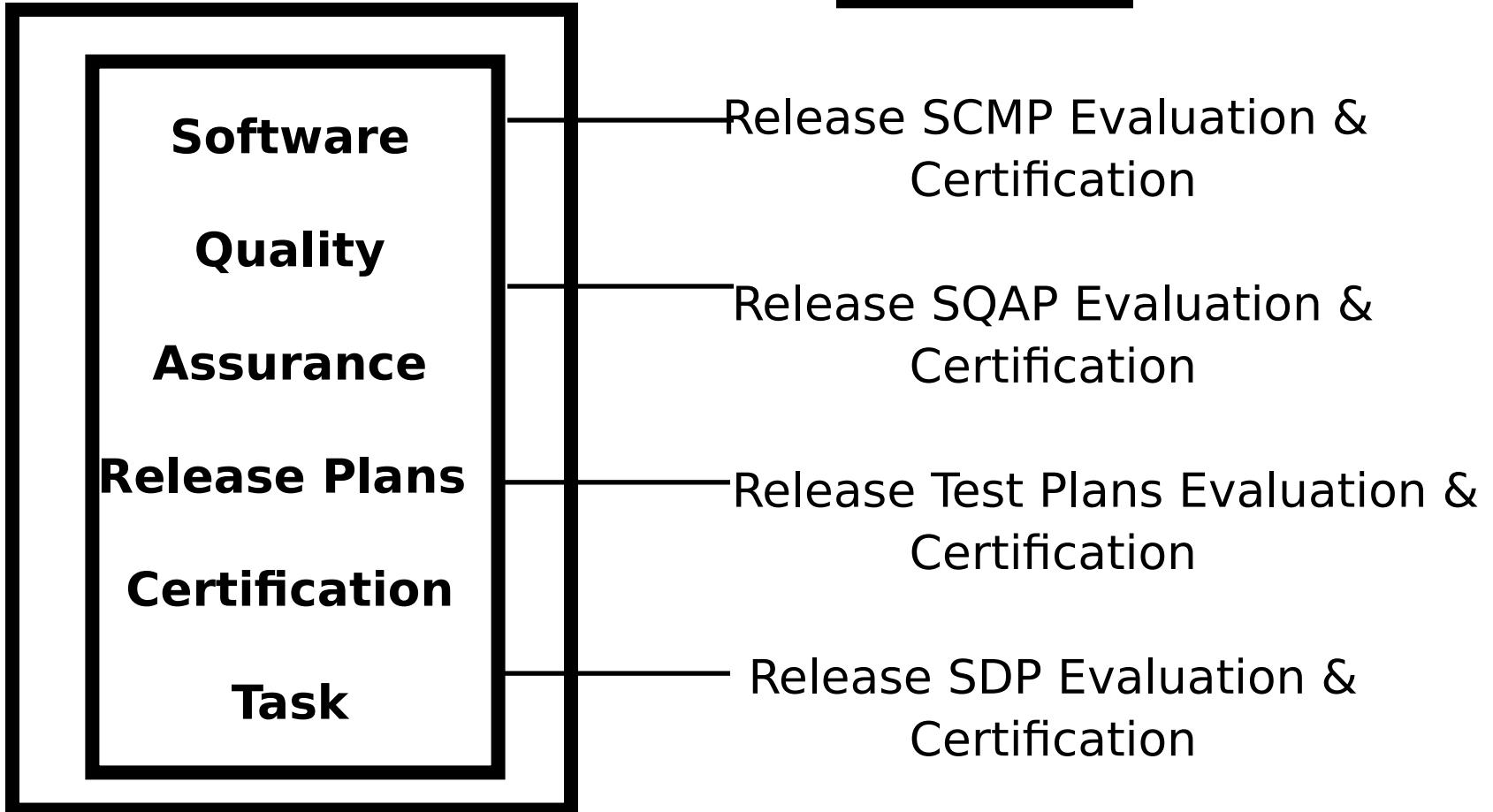
Output (s):

Cert. Release SCMP →
Cert. Release SQAP →
Cert. Release Test Plans →
Cert. Release SDP →

Skill(s):

Software Quality Assurance

4 Subtasks



SQA Release Plans Certification Task

Release SCMP Evaluation & Certification

Subtask 1 of 4

- Verify the current SCM Plan has been approved
- Discuss discrepancies with appropriate project management personnel

SQA Release Plans Certification Task

Release SQAP Evaluation & Certification

Subtask 2 of 4

- Verify SQA Plan has been approved
- Discuss discrepancies with appropriate project management personnel

SQA Release Plans Certification Task

Release Test Plans Evaluation & Certification

Subtask 3 of 4

- Verify Release Test SCM Plans have been developed and approved
- Discuss discrepancies with appropriate project management personnel

SQA Release Plans Certification Task

Release SDP Evaluation & Certification

Subtask 4 of 4

- Verify SDP Plan has been accurately prepared
- Discuss discrepancies with appropriate project management personnel

Performance Check



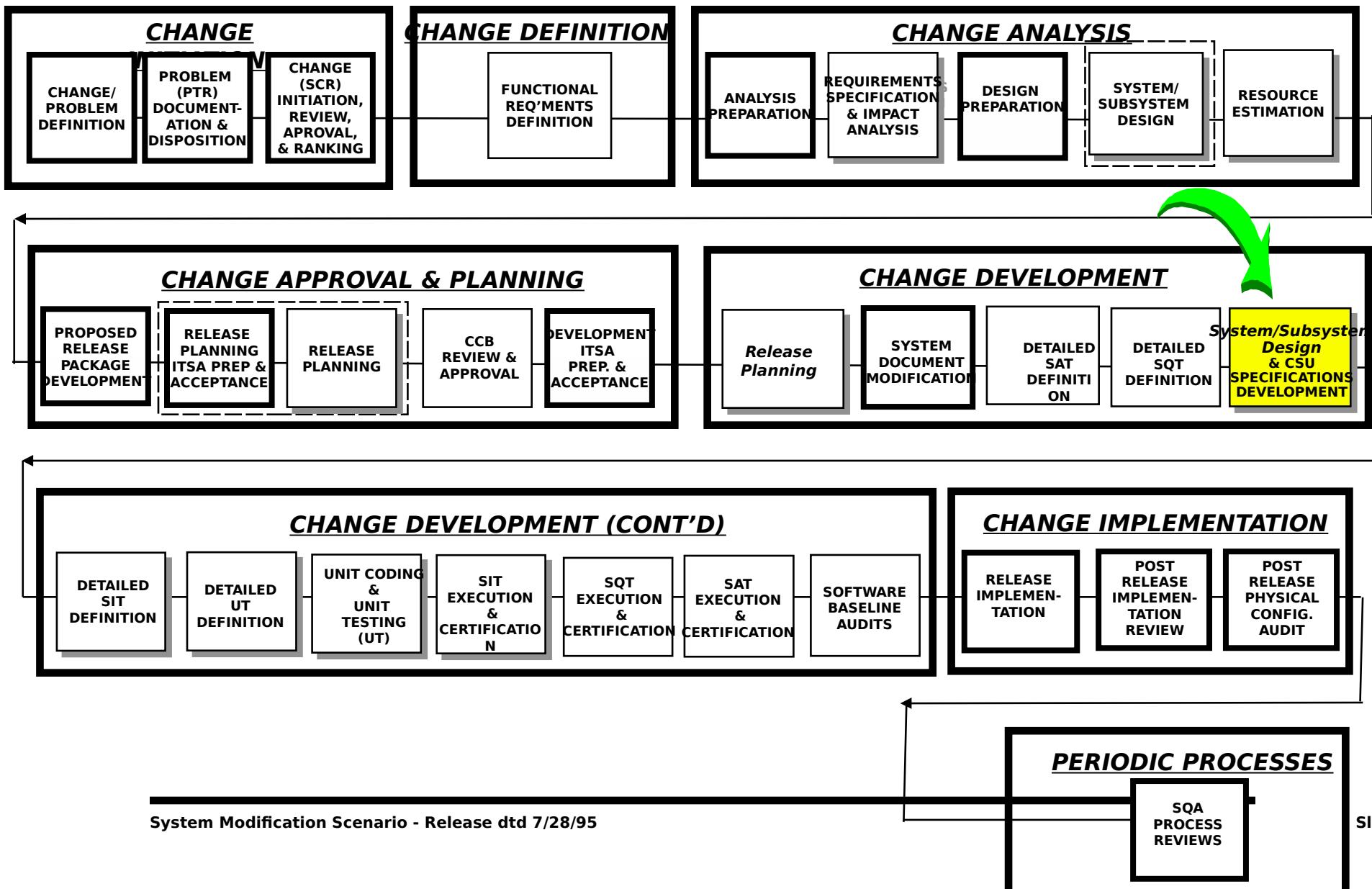
**Open the Performance Check booklet to the
SQA Release Plans Certification Task
and answer the questions.**

SOFTWARE PROCESS ARCHITECTURE

02/02/97

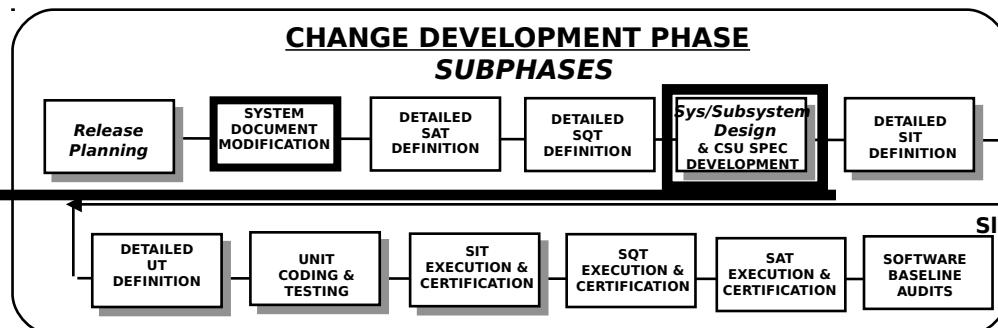
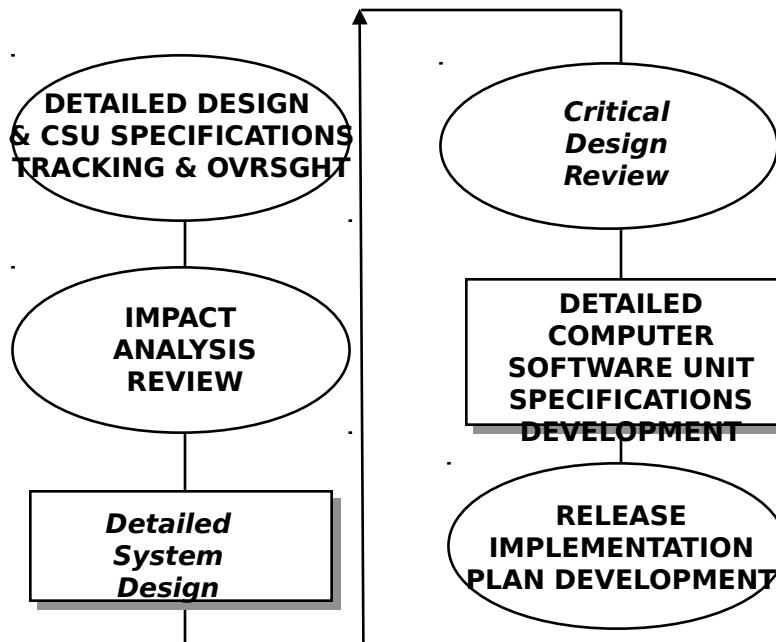
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SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES

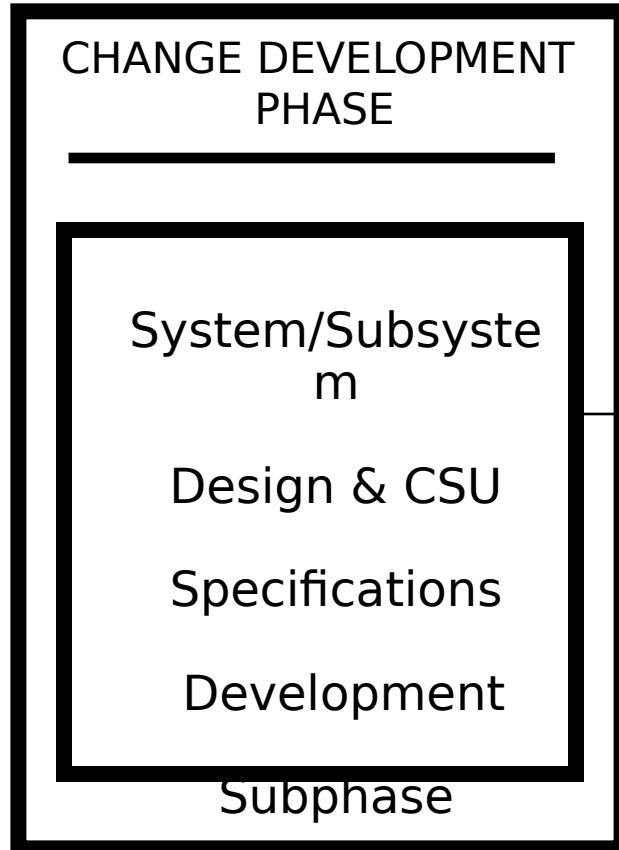


System/Subsystem Design & COMPUTER SOFTWARE UNIT (CSU) SPECIFICATIONS DEVELOPMENT SUBPHASE

TASKS



1 TASK

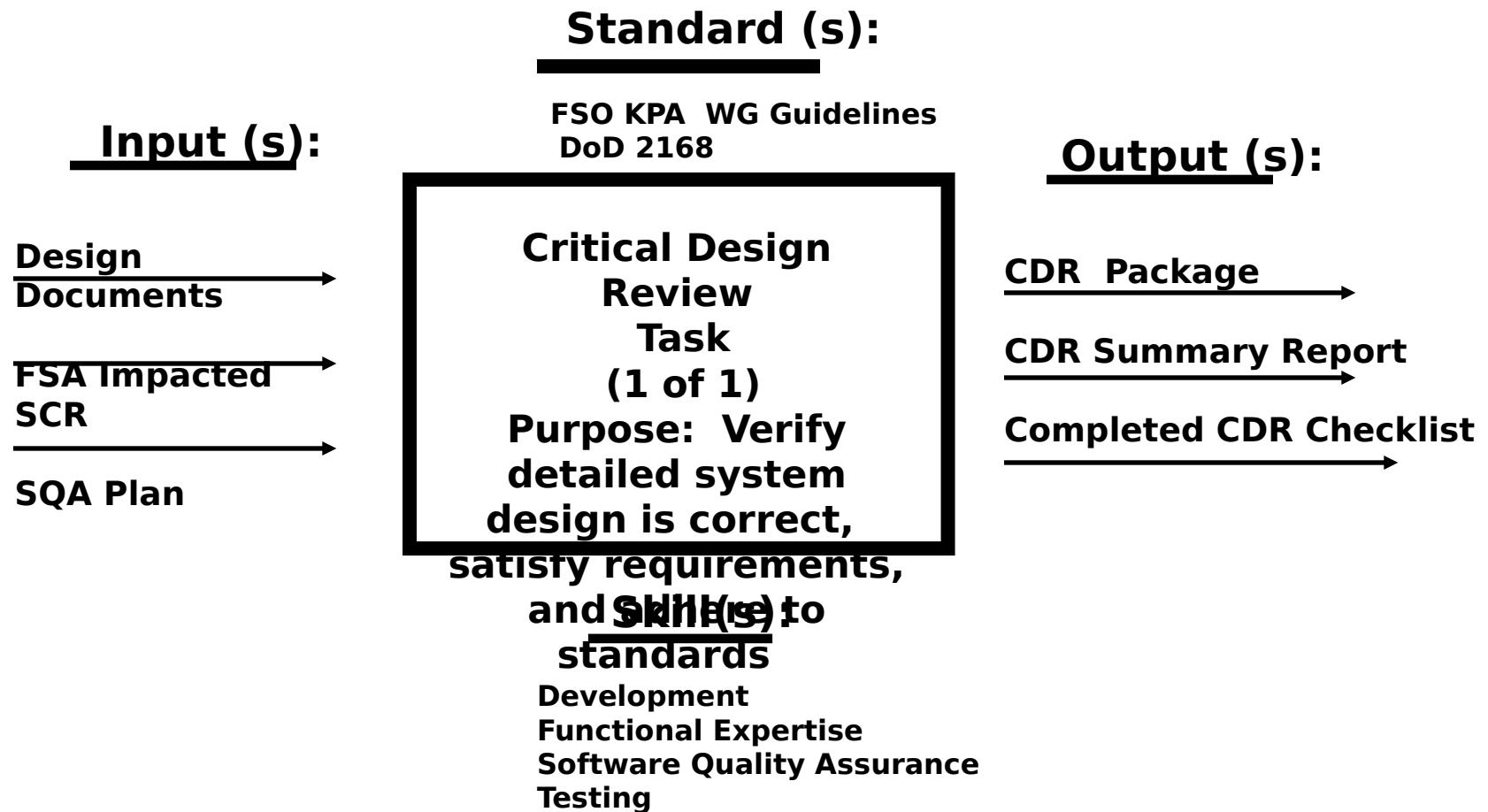


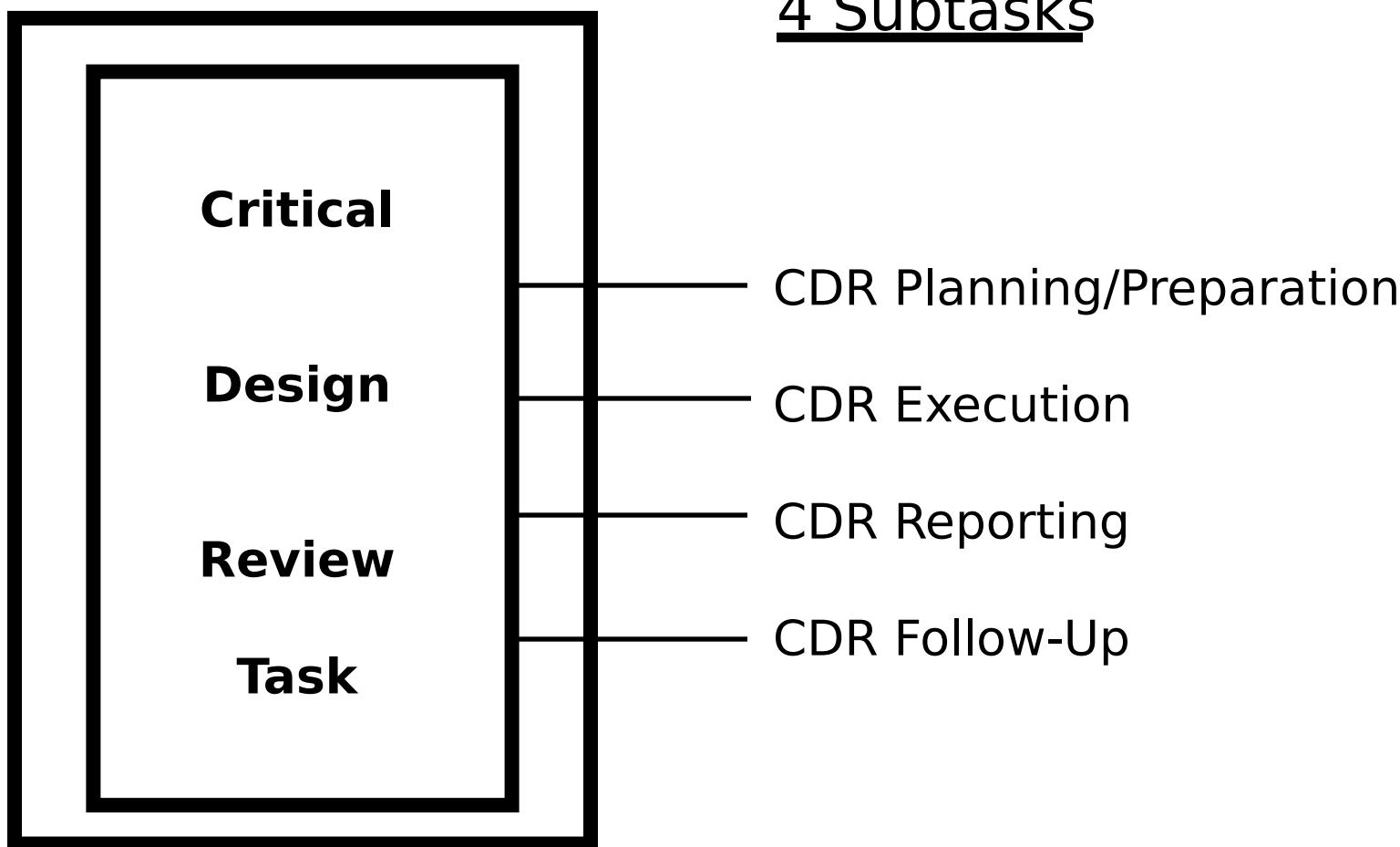
Critical Design Review (CDR) Task



PURPOSE:

- Verify that the modified detailed system design is complete & correct
- Verify that the design satisfies both functional and technical system requirements
- Verify that the design adheres to DoD, DFAS & FSO standards





Critical Design Review (CDR) Task

CDR Planning/Preparation

Subtask 1 of 4

- Determine CDR Participants, Format, Execution
- Schedule CDR Facilities
- Develop CDR Agenda
- Notify Participants of CDR
- Tailor and/or Expand CDR Checklist
- Develop CDR Package
- Distribute CDR Package

Critical Design Review (CDR) Task

CDR Execution Subtask 2 of 4

- Facilitate CDR
- Validate Detailed System Design
- Assure Quality Compliance of Critical Design
- Document CDR
- Evaluate CDR

Critical Design Review (CDR) Task

CDR Reporting Subtask 3 of 4

- Prepare CDR Summary Report
- Distribute CDR Summary Report

Critical Design Review (CDR) Task

CDR Follow-Up **Subtask 4 of 4**

- Collect and Annotate CDR Metrics
- Generate Quality Metric Reports
- Collect and Annotate CDR Action Items
- Track and Report CDR Action Items

Performance Check



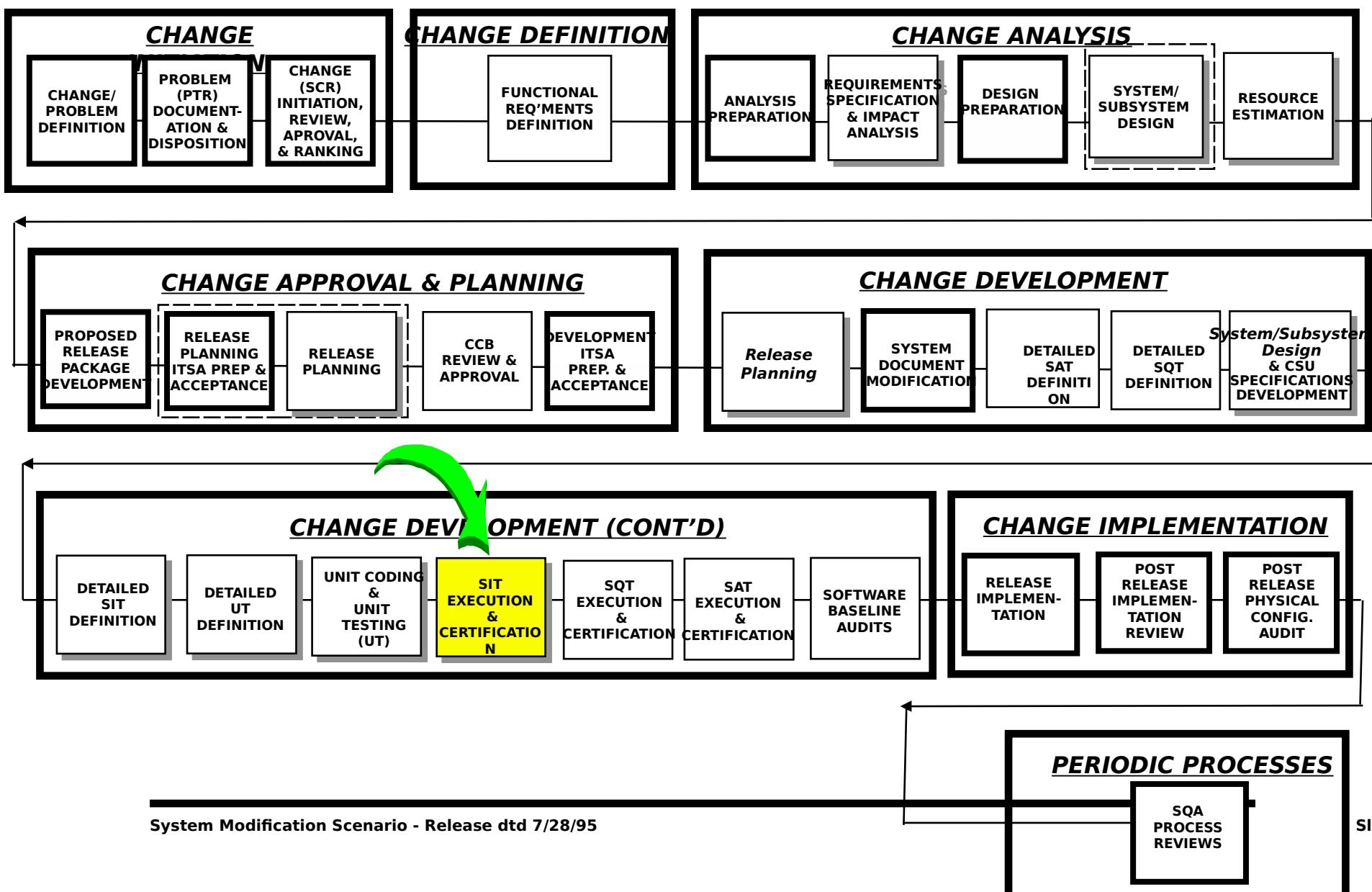
Open the Performance Check booklet to the Critical Design Review (CDR) Task and answer the questions regarding the CDR.

SOFTWARE PROCESS ARCHITECTURE

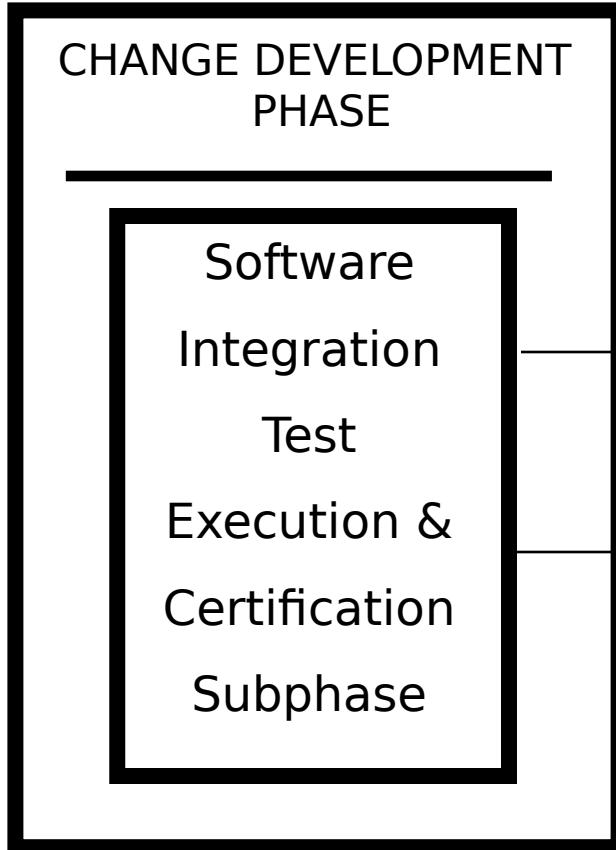
02/02/97

QA03-95

SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES



2 TASKS



Standard (s):

DFAS FSO KPA WG SQA Guidelines
DFAS 8000.1-R Chap. 11

Input (s):

Changes to SCR
Reqmt/
~~Design specs~~ →
Subsequent
to the SRR

Current User/System
Documentation →

Developer's informal
Test Results →

~~Outstanding
Deficiency
Reports from CDR~~ →

Release Dev Schedule
/Status →

Reqmts Traceability
Matrix →

SIT Plan →

SQA Responsibility
Matrix →

SQA TRR Checklist →

~~Test Conditions/
Transactions~~ →

Output (s):

Completed SIT Readiness
Review Checklist →

SIT Readiness Review
Package →

SIT Readiness Review
Summary Report →

SIT Readiness Review
Agenda →

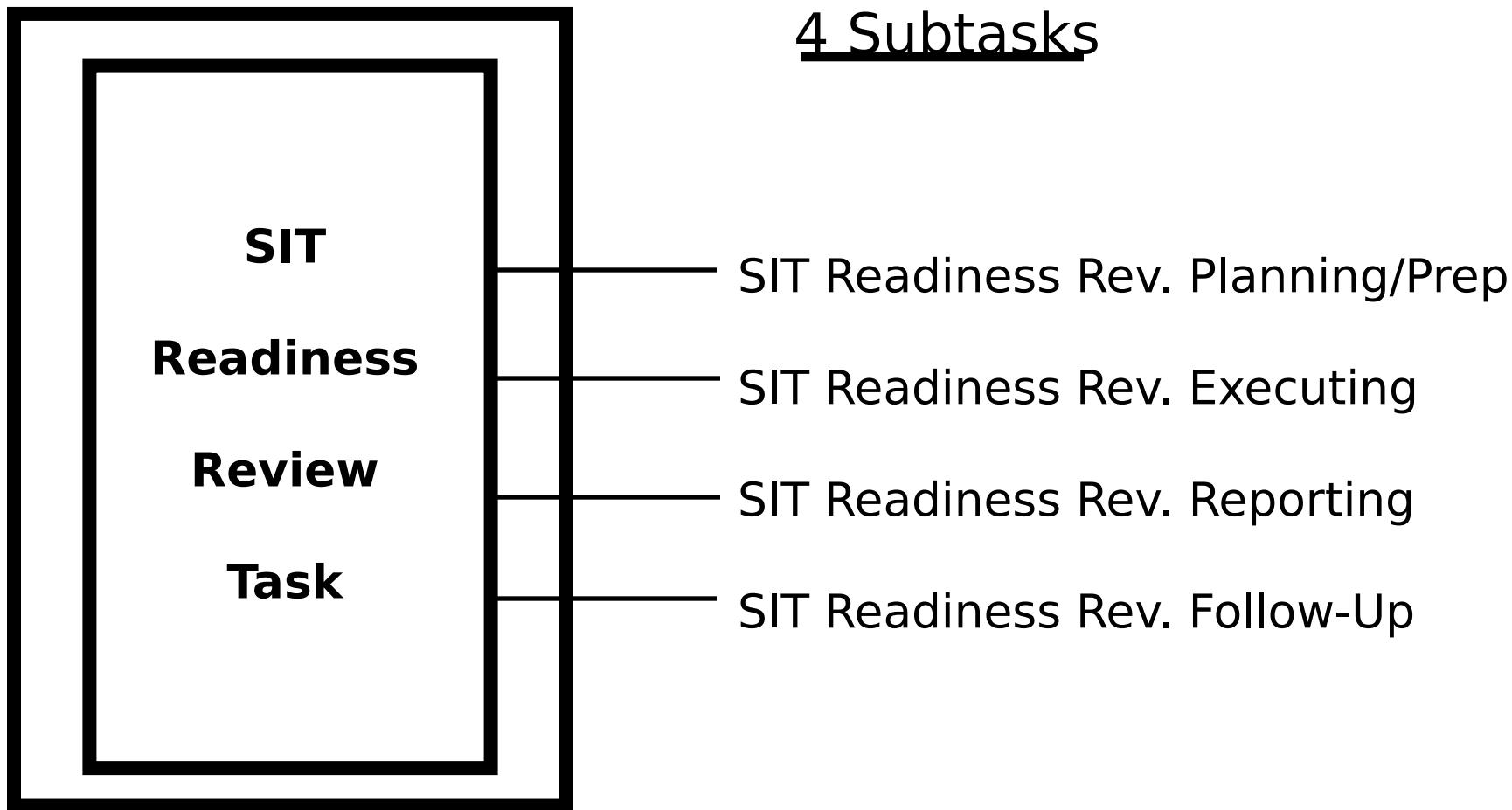
Test Preparation Checklist →

**SIT Readiness Review
Task
(1 of 2)**

Purpose: SIT Readiness
Review is conducted,
changes completed and
tested, SIT environment
is established

Skill(s):

Development
Functional Expertise
SQA
Technical
Testing



Software Integration Test Readiness Review Task

SIT Readiness Review Planning/Preparation

Subtask 1 of 4

- Identify SCRs for Review, SIT Readiness Review participants, meeting recorder, and each SCR presenter
- Schedule SIT Readiness Review Facilities
- Develop SIT Readiness Review Agenda
- Notify Participants of SIT Readiness Review
- Tailor and/or expand SIT Readiness Review Checklist
- Prepare SIT Readiness Review Package
- Distribute SIT Readiness Review Package

Software Integration Test Readiness Review Task

SIT Readiness Review Execution Subtask 2 of 4

- Facilitate SIT Readiness Review
- Validate Functional Specifications
- Assure Quality Compliance of Functional Specifications
- Document SIT Readiness Review

Software Integration Test Readiness Review Task

SIT Readiness Review Reporting Subtask 3 of 4

- Prepare SIT Readiness Review Summary Report
- Distribute SIT Readiness Review Summary Report

Software Integration Test Readiness Review Task

SIT Readiness Review Follow-Up

Subtask 4 of 4

- Collect and Annotate SIT Readiness Review Metric
- Generate SIT Readiness Review Metrics Report
- Collect SIT Readiness Review Action Items
- Track and Report SIT Readiness Review Action Items

Performance Check



Open the Performance Check booklet to the Software Integration Test Readiness Review and answer the questions.

Input (s):

Test Analysis Report →

~~Test Discrepancy Report~~ →

~~Test Results~~ →

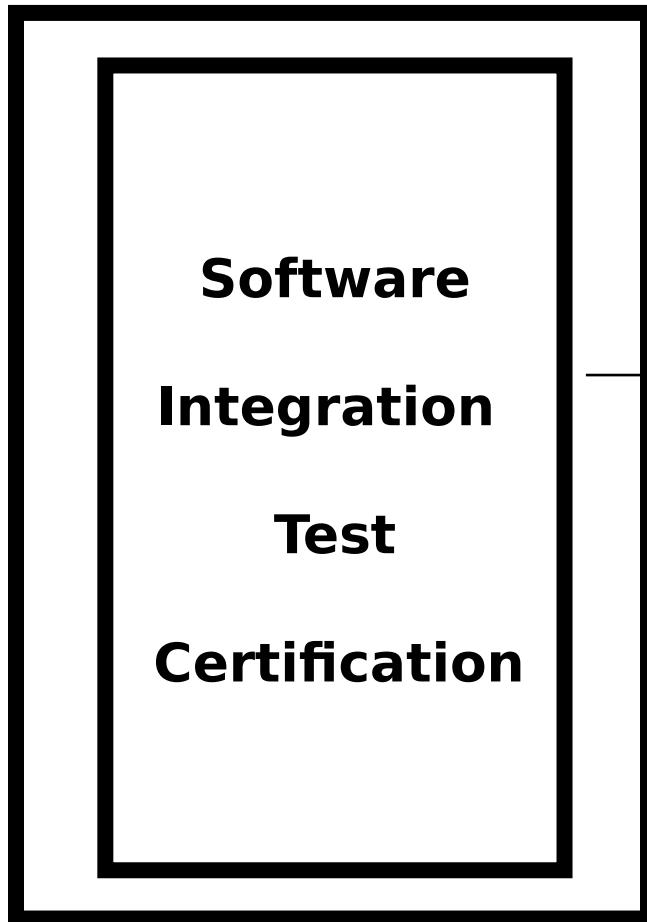
Output (s):

CMIS Certification
Entry →

**SIT Certification Task
(2 of 2)**
Purpose: Ensure all
requirements have been
met- SIT successfully
completed, validated

Skills:

**Project
Management**



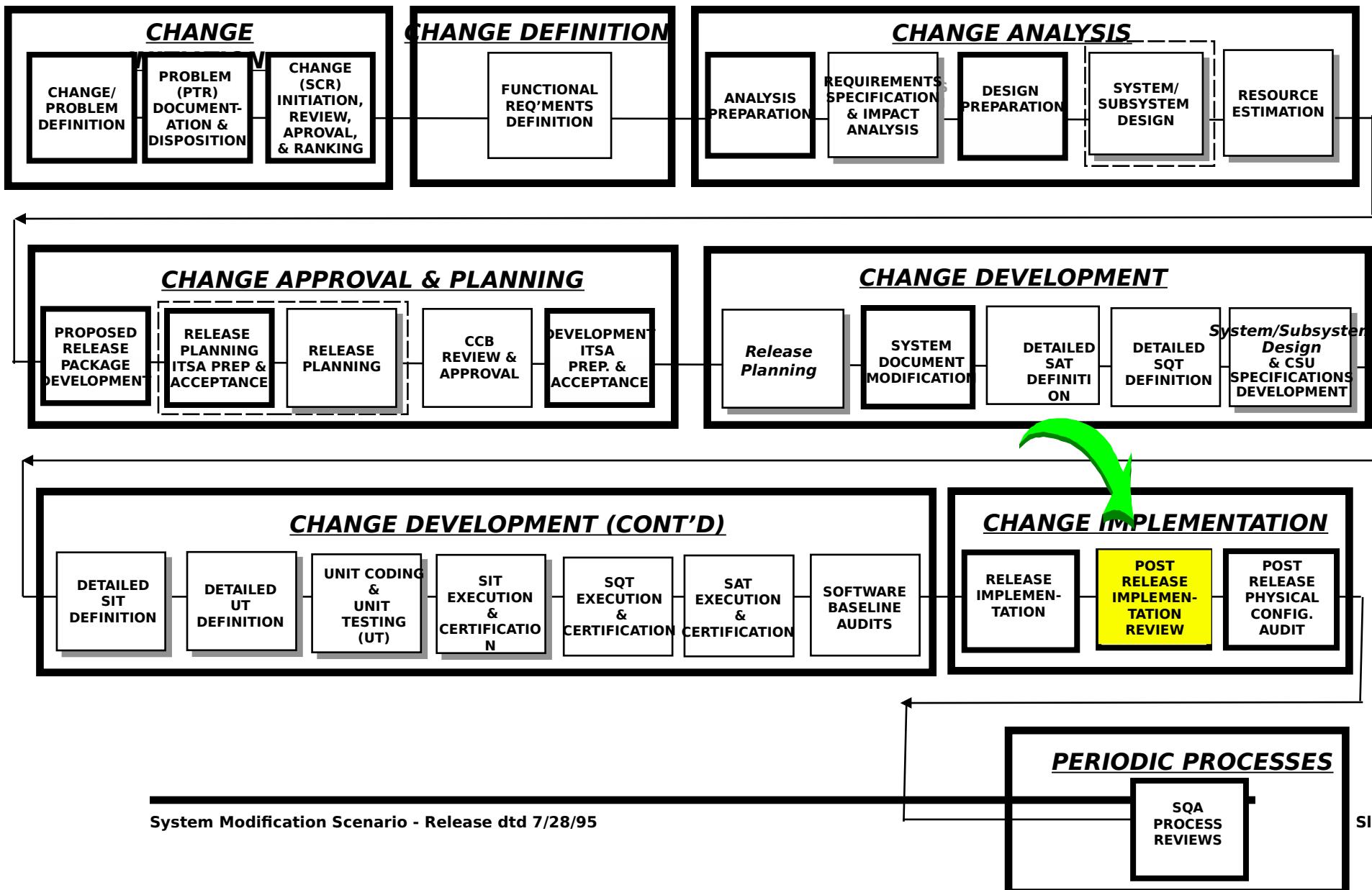
1 Subtask

SIT Software Qualification
Assurance Certification

Software Integration Test Certification Task

SIT Software Qualification Assurance Certification Subtask 1 of 1

- Results of SIT execution are reviewed
- Ensure Test deficiencies/discrepancies are documented
- Ensure resolution and documentation of corrective actions

SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES

CHANGE IMPLEMENTATION PHASE

Post Release
Implementation
Review
Subphase

1 TASK

Post Implementation Review

Standard (s):

DFAS FSO KPA WG
SQA Guidelines

Input (s):

Planned vs
Actual
Release Data →

PTR →

SQA KPA
Guidelines →

PIR Checklist →

SQA KPA
Guidelines →

PIR
Questionnaires →

**Post Implementation
Review Task
(1 of 1)**

Purpose: To validate
implementation
procedures,
software changes,
user training,
documentation.

Skill(s):

Development
Functional Expertise
SQA
Technical
Testing

Output (s):

Completed PIR
Questionnaires →

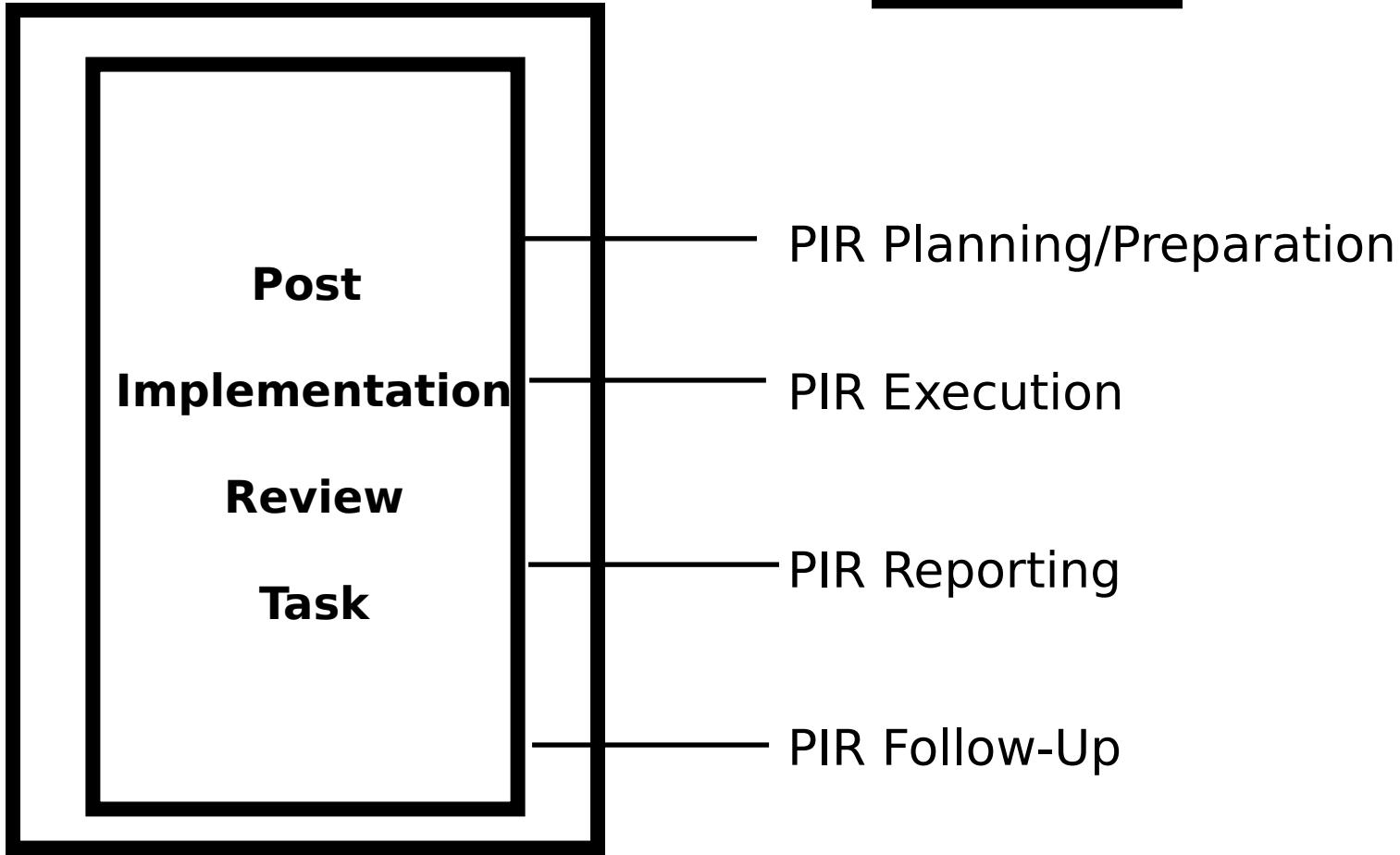
Completed PIR Checklist →

PIR Agenda →

PIR Summary Report →

PIR Package →

4 Subtasks



Post Implementation Review Task

PIR **Planning/Preparation**

Subtask 1 of 4

- Schedule Post Implementation Review Facilities
- Identify SCRs for Review, PIR participants, meeting recorder and each presenter
- Develop Post Implementation Review Agenda
- Prepare and distribute questionnaires
- Analyze metrics data
- Prepare & include Preliminary Findings Report
- ~~Develop PIR Package~~

Post Implementation Review Task

PIR Execution Subtask 2 of 4

- Facilitate the Post Implementation Review
- Validate Functional Specifications
- Assure Quality Compliance of Functional Specifications
- Document Post Implementation Review
- Evaluate Post Implementation Review

Post Implementation Review Task

PIR Reporting Subtask 3 of 4

- Prepare Post Implementation Review Summary Report
- Distribute Post Implementation Review Summary Report

Post Implementation Review Task

PIR Follow-Up **Subtask 4 of 4**

- Collect and Annotate Post Implementation Review Metrics
- Generate Post Implementation Review Metrics Report
- Collect Post Implementation Review Action Items
- Track and Report Post Implementation Review Action Items

Performance Check



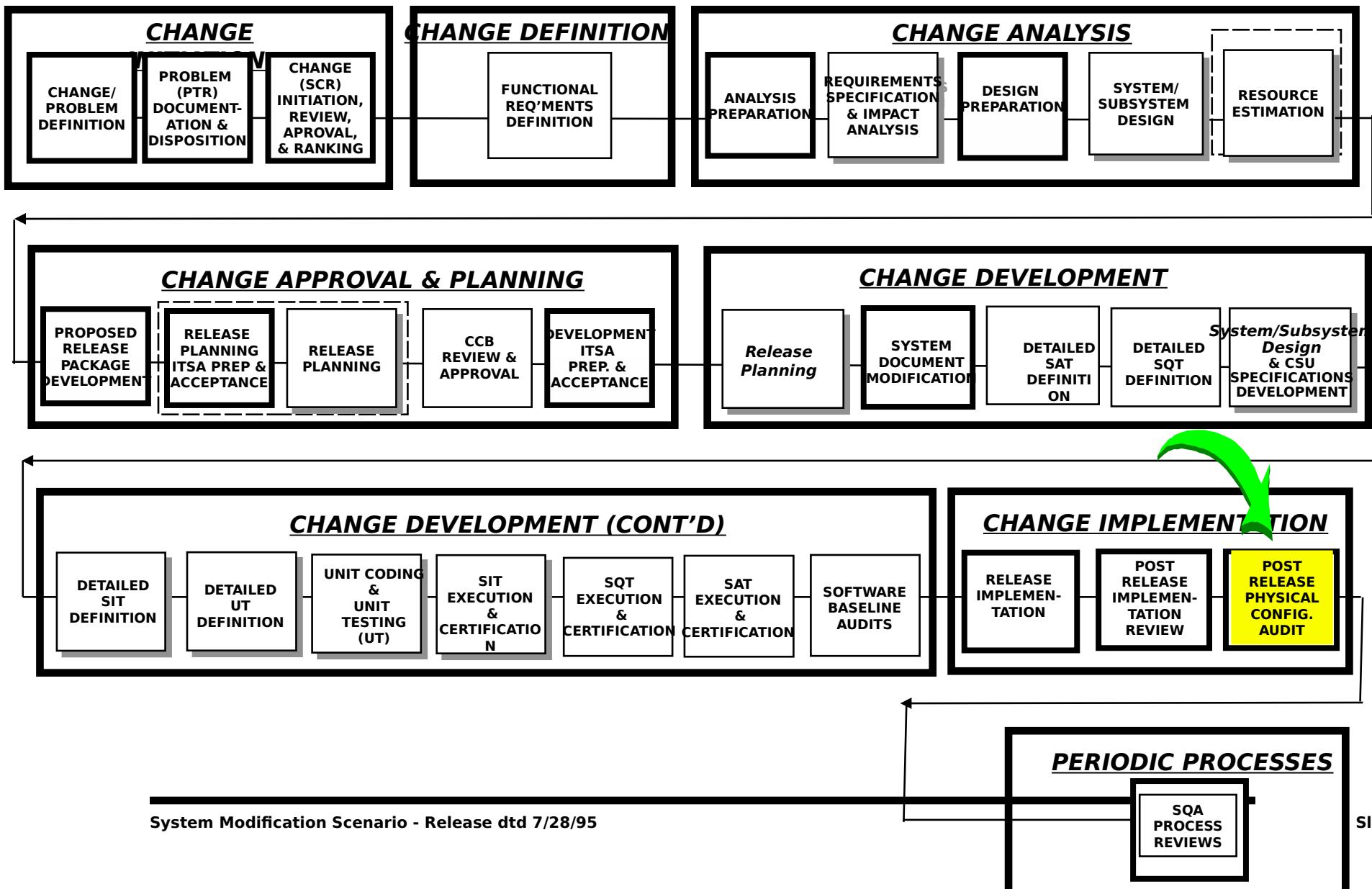
**Open the Performance Check booklet to the
Post Implementation Review Task
and answer the questions.**

SOFTWARE PROCESS ARCHITECTURE

02/02/97

QA03-95

SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES



CHANGE IMPLEMENTATION PHASE

Post Release
Physical
Configuration
Audit
Subphase

2 TASKS

Reporting

Metrics Tabulation

Standard (s):

DFAS FSO KPA WG
SQA Guidelines

Input (s):

Software Baseline
Audit Findings
Report



Output (s):

Software Baseline Audit
Findings Report



**Post-Release Physical
Configuration Audit
Reporting Task
(1 of 2)**
**Purpose: Review
discrepancies, corrective
action and responsible
individuals.**

Skill(s):

Configuration
Management
SQA

Post-Release PCA Reporting Task

- SQA & SCM review S/W Baseline Audit Findings Report
- Results of audit reported to AIS PM.

Standard (s):

DFAS FSO KPA WG
SQA Guidelines

Input (s):

Types of CI
reviewed

CIs in each
type

errors found

Time to correct.

Output (s):

Tabulated Metrics

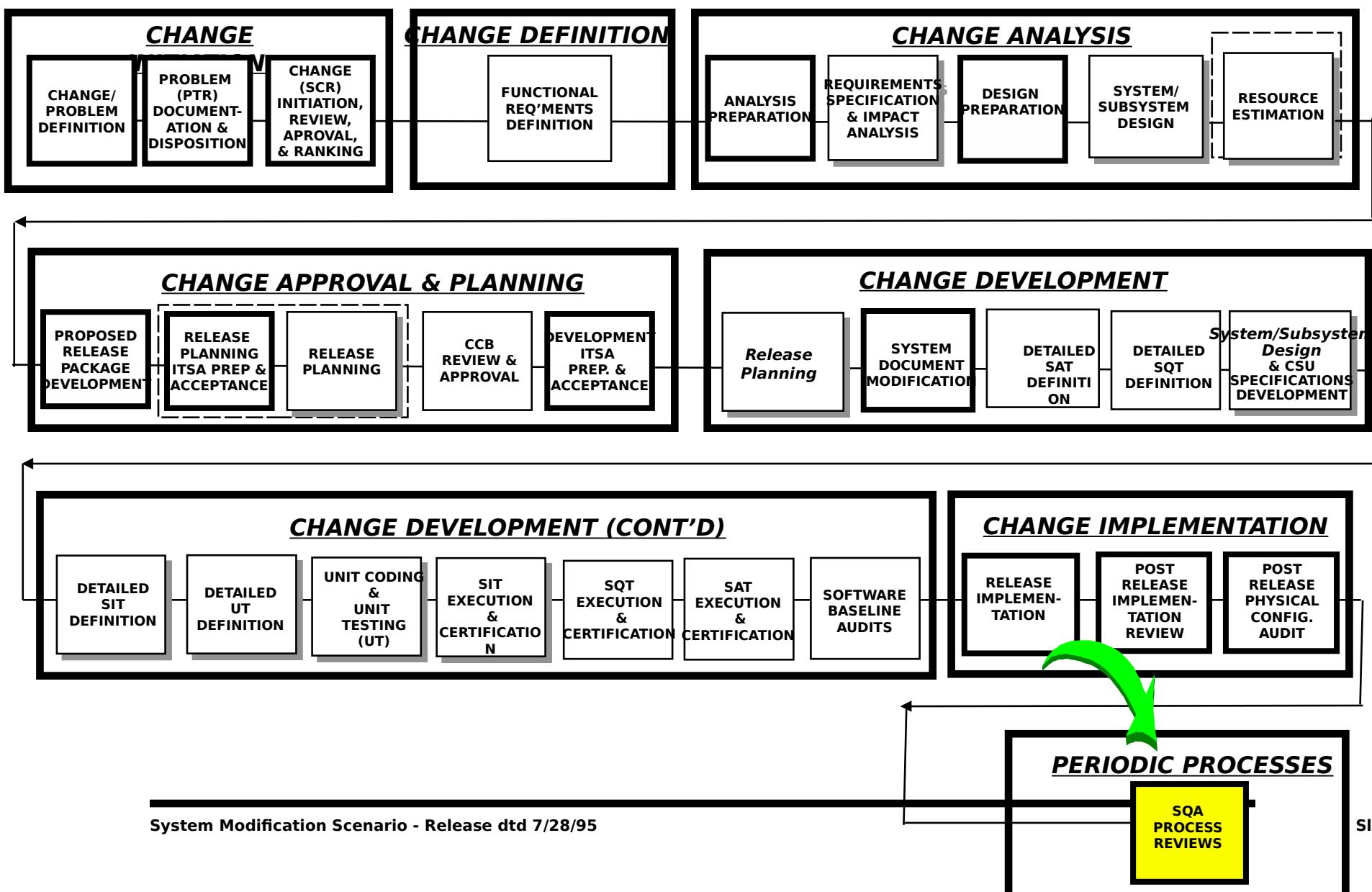
**Post-Release Physical
Configuration Audit
Metrics Tabulation Task
(2 of 2)**
Purpose: Collect metrics

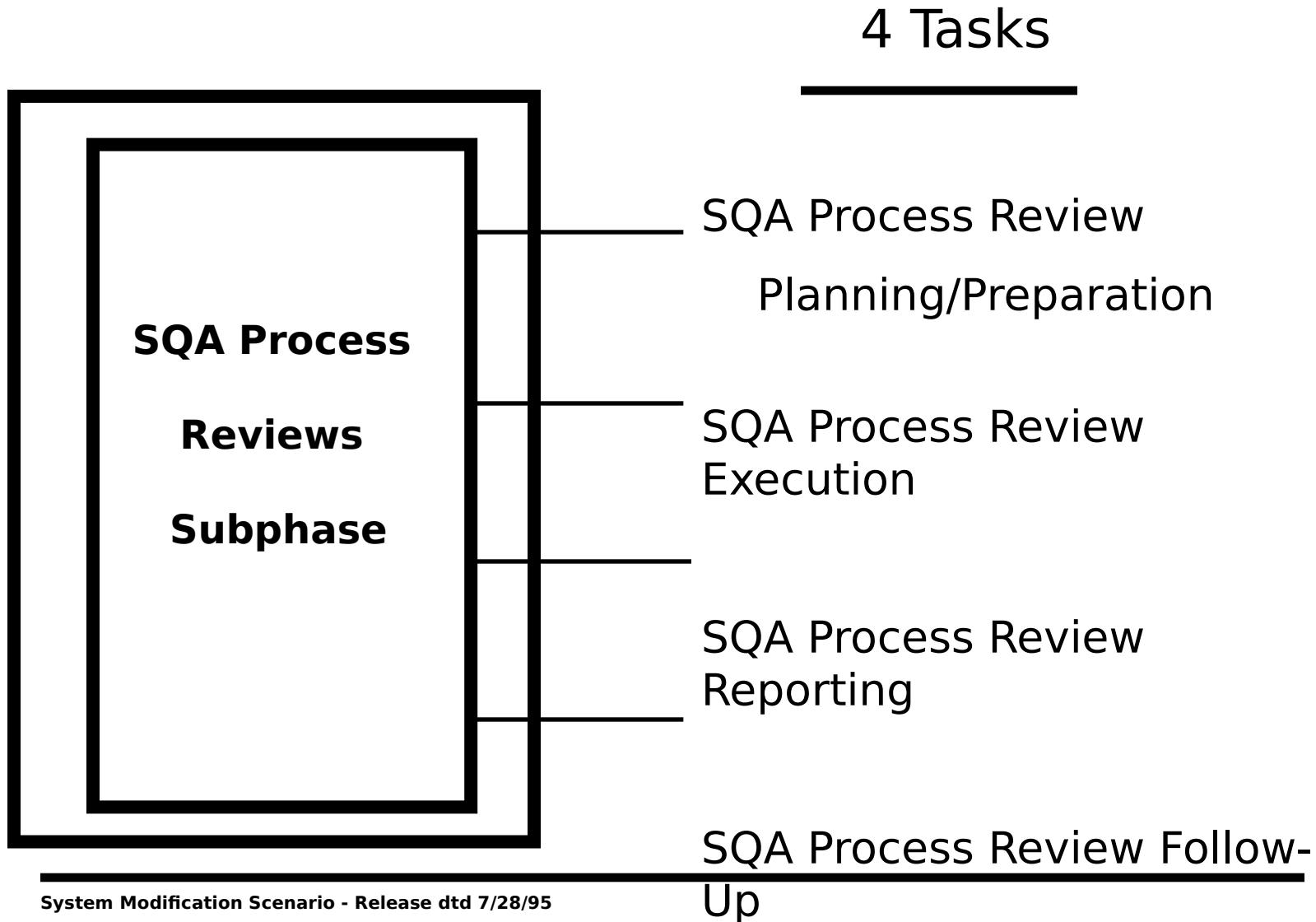
Skill(s):

Configuration
Management
SQA

Post-Release PCA Metrics Tabulation Task

- Types of Configuration Items reviewed
- Number of Configuration Items reviewed in each type
- Number of errors found
- Time elapsed to correct errors

SYSTEM MODIFICATION SCENARIO - PHASES & SUBPHASES



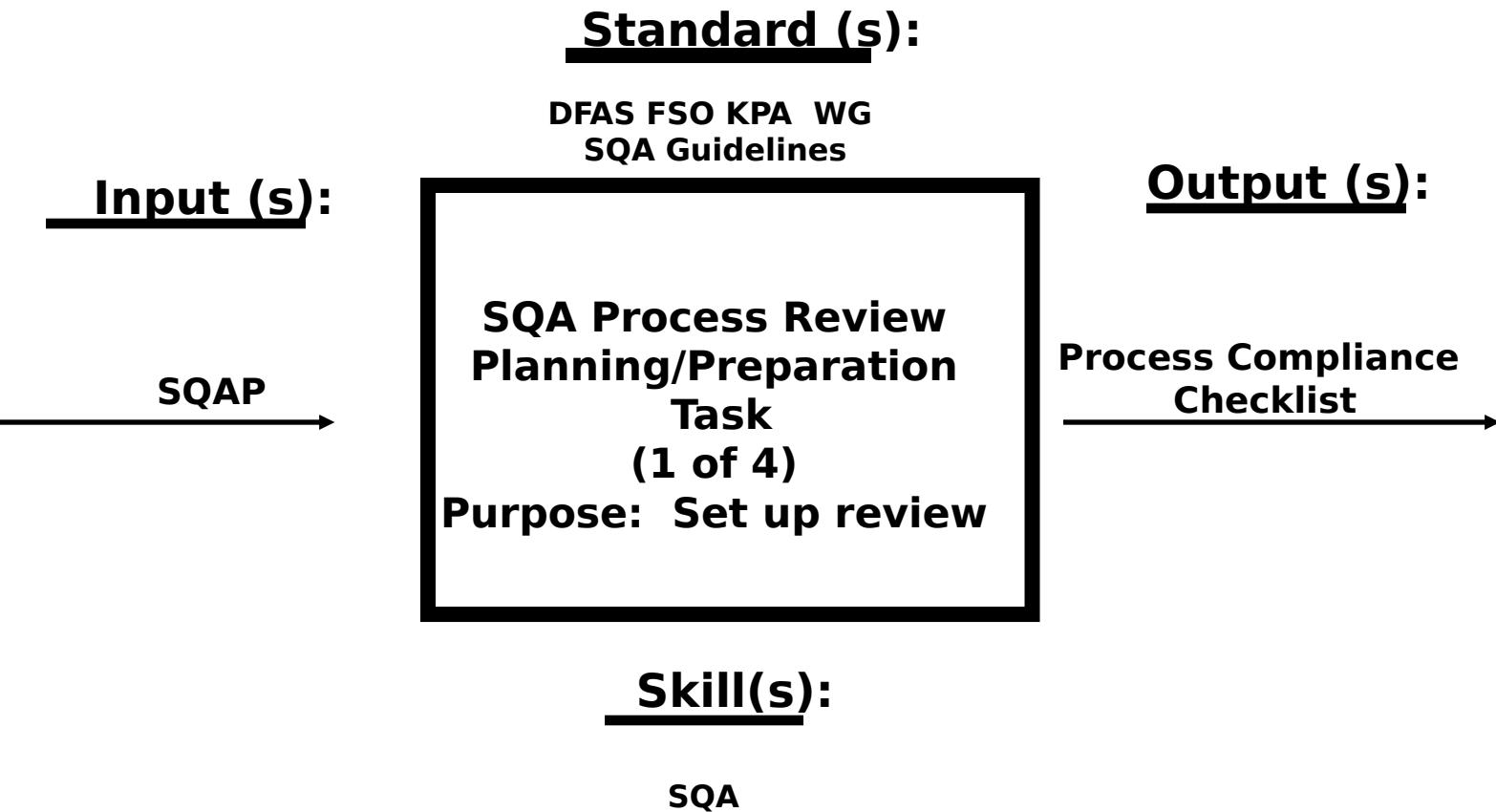
SQA Process Reviews

OBJECTIVES: Process compliance...

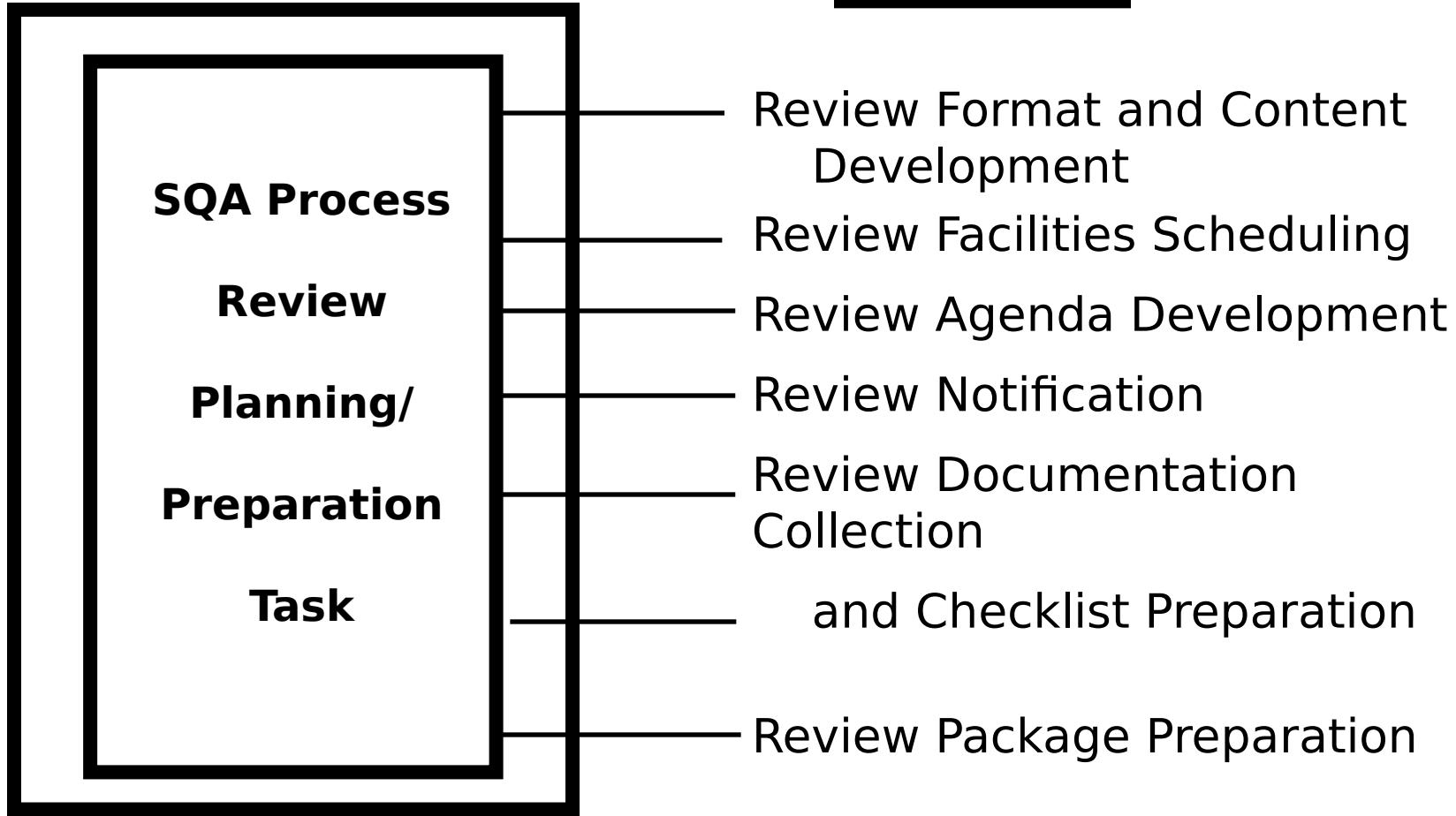
Provide independent verification

Provide visibility to management

Provide mechanism for resolution of deficiencies



7 Subtasks



SQA Process Review Planning/Preparation Task

Format and Content Development

Subtask 1 of 7

- Identify:
 - Review participants
 - Review Coordinator
 - Documentation presenter
 - Determine Format and Execution of Review
 - Make other necessary arrangements

SQA Process Review Planning/Preparation Task

Review Facilities Scheduling

Subtask 2 of 7

- Determine location
- Arrange for:
 - meeting time
 - seating capacity
 - equipment
- Reserve facility for time needed

SQA Process Review Planning/Preparation Task

Review Agenda Development Subtask 3 of 7

Set agenda to include:

- Format
- Assignments
- List of participants
- Time
 - To evaluate documentation
 - To Identify discrepancies
 - To find possible solutions.

SQA Process Review Planning/Preparation

Task

Review Notification

Subtask 4 of 7

- Inform participants of:
 - Location
 - Time
- Notify participants of:
 - Material to be reviewed
 - Timeframe allotted
- Advise persons of any special assignments

SQA Process Review Planning/Preparation Task

Review Documentation Collection & Checklist Preparation Subtask 5 of 7

- Obtain documentation for review
- Tailor checklist for project

SQA Process Review Planning/Preparation Task

Review Package Preparation Subtask 6 of 7

Include:

- Agenda with list of participants
- Tailored checklist(s)
- Documentation to be reviewed

SQA Process Review Planning/Preparation

Task

Review Package Distribution

Subtask 7 of 7

- Distribute at least 3 working days prior to review

Standard (s):

DFAS FSO KPA WG
SQA Guidelines

Input (s):

Process
Compliance
Checklist

**SQA Process Review
Execution
Task
(2 of 4)**

**Purpose: Examine
representative sample of
project activities**

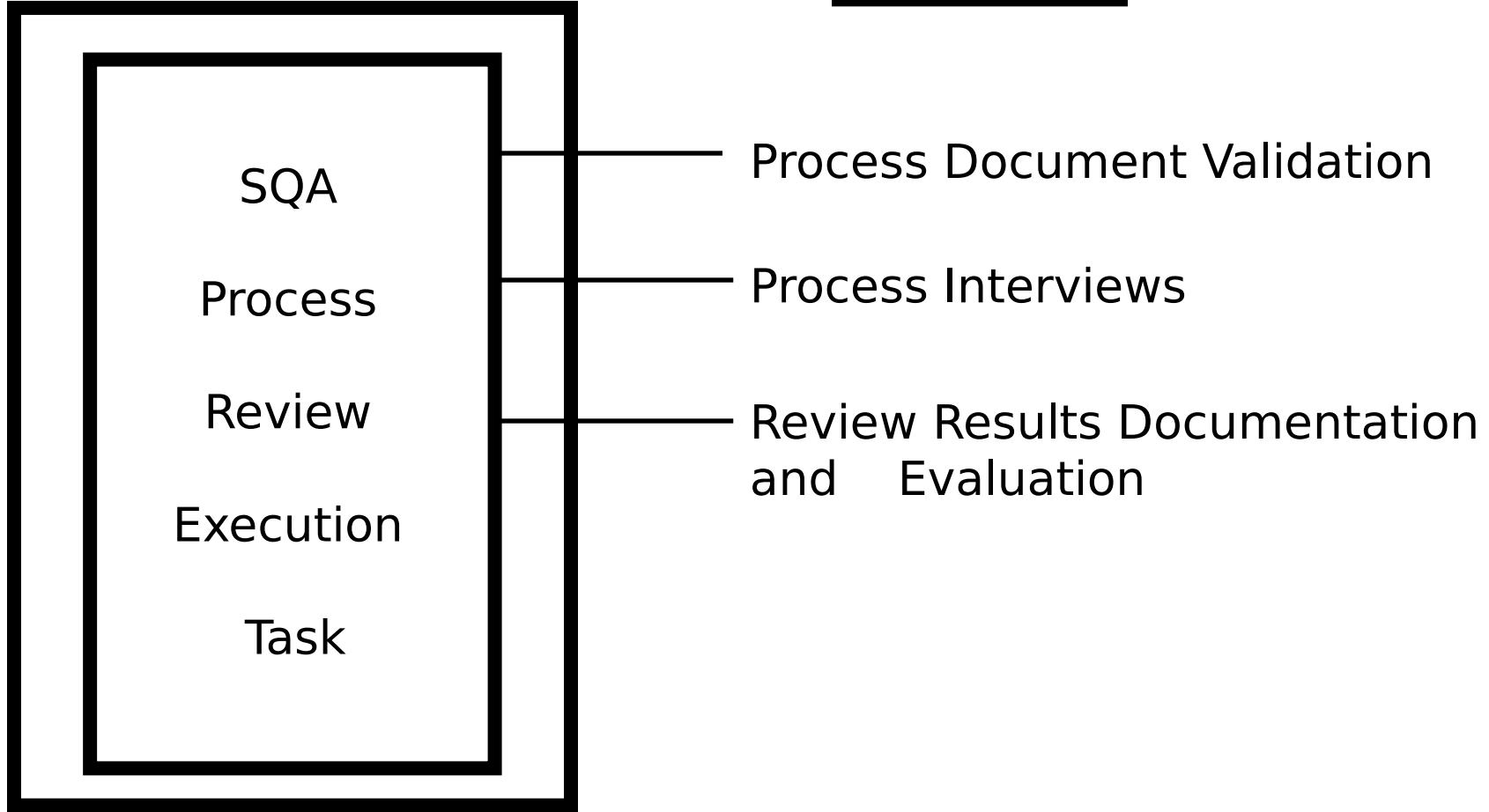
Output (s):

Process Compliance
Checklist

Skill(s):

SQA

3 Subtasks



SQA Process Review Execution Task

Process Document Validation

Subtask 1 of 3

- Participants will examine documentation to answer each item in the compliance checklist.
- Non-compliant items will have reasons documented

SQA Process Review Execution Task

Process Interviews **Subtask 2 of 3**

- Process Interviewer:
 - Conducts interview by agenda and schedule
 - States purpose, scope
 - May be mediator and recorder
- Subsequent interviews may be requested

SQA Process Review Execution Task

Review Results Documentation & Evaluation Subtask 3 of 3

- Documentation:
 - Process deviations
 - Areas of concern
 - Compliance checklist
- Review Coordinator reiterates status of each item

Standard (s):

DFAS FSO KPA WG
SQA Guidelines

Input (s):

Process
Compliance
Checklist

**SQA Process Review
Reporting
Task
(3 of 4)**
Purpose: Document
review& inform
management & project
personnel of results.

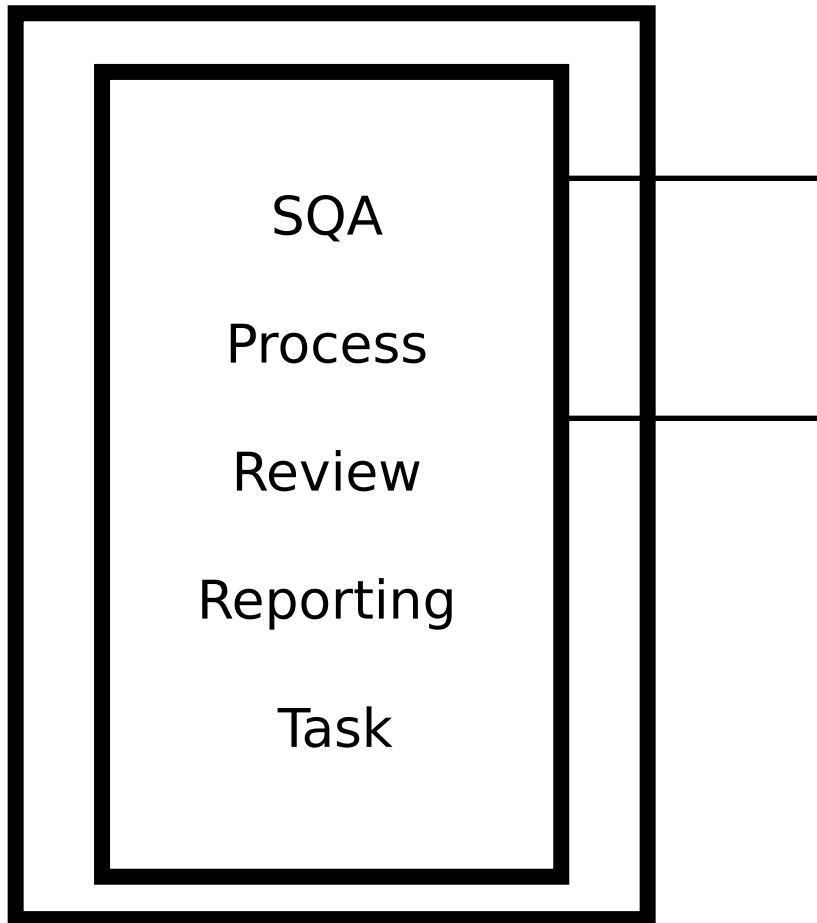
Output (s):

SQA Review Summary
Report

Skill(s):

SQA

2 Subtasks



- Review Summary Report Preparation
- Review Summary Report Distribution

SQA Process Review Reporting Task

Review Summary Report Preparation

Subtask 1 of 2

- Review Coordinator uses:
 - Sample in SQA Guidelines
 - Compliance checklist results
 - Information from previous subtask
- Review Coordinator creates written report

SQA Process Review Reporting Task

Review Summary Report Distribution Subtask 2 of 2

- Distributed to:
 - All participants
 - Appropriate management personnel
- Reviewed by all
- Any necessary changes agreed to by all

Standard (s):

DFAS FSO KPA WG
SQA Guidelines

Input (s):

SQA Review
Summary Report →

Output (s):

Action Item Log

Action Item Notification

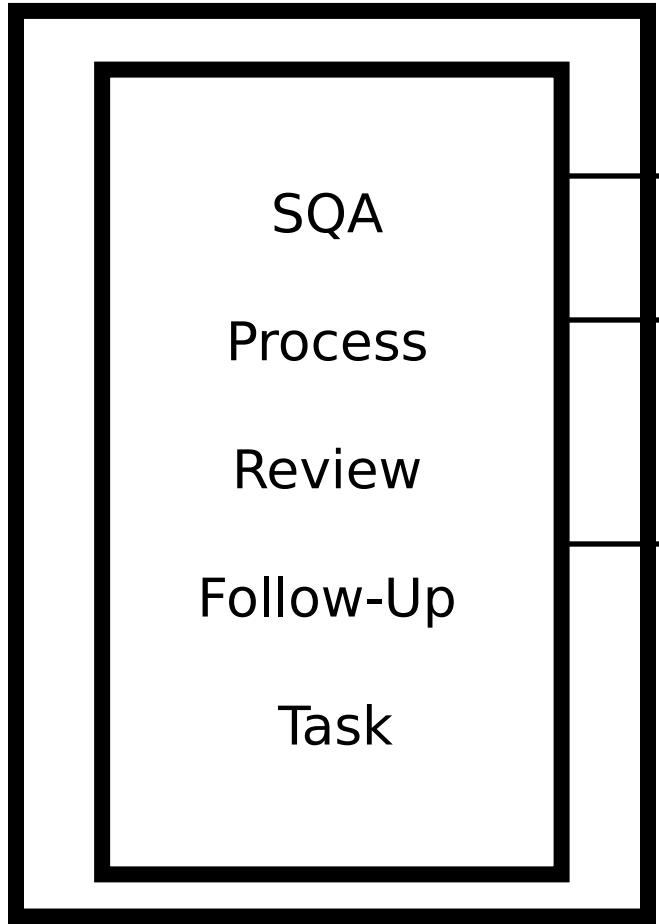
Metrics Report

**SQA Process Review
Follow-up
Task
(4 of 4)**
**Purpose: Maintain
records, gather input for
Summary Report**

Skill(s):

SQA

3 Subtasks



Review Metrics Collection and Entry

Review Action Item Collection and Entry

Review Action Item Tracking and Reporting

SQA Process Review Follow-Up Task

Review Metrics Collection & Entry **Subtask 1 of 3**

- Prepare SQA Metrics Report
- Automated repository or manual log

SQA Process Review Follow-Up Task

Review Action Item Collection & Entry **Subtask 2 of 3**

Action Item Notification
for each Summary Report
process deviation

SQA Process Review Follow-Up Task

Review Action Item Tracking & Reporting

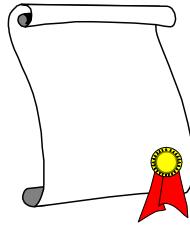
Subtask 3 of 3

- Action Item Log created & used for:
 - Documenting status
 - Coordinating with project personnel to close item
 - SQA validates any supporting documentation
- Log is updated to inform appropriate:
 - Management
 - Project personnel

Performance Check



**Open the Performance Check booklet to SQA
Process Reviews page and answer the questions.**



CONGRATULATIONS

YOU HAVE

SUCCESSFULLY COMPLETED THE

**SOFTWARE QUALITY ASSURANCE
COURSE**